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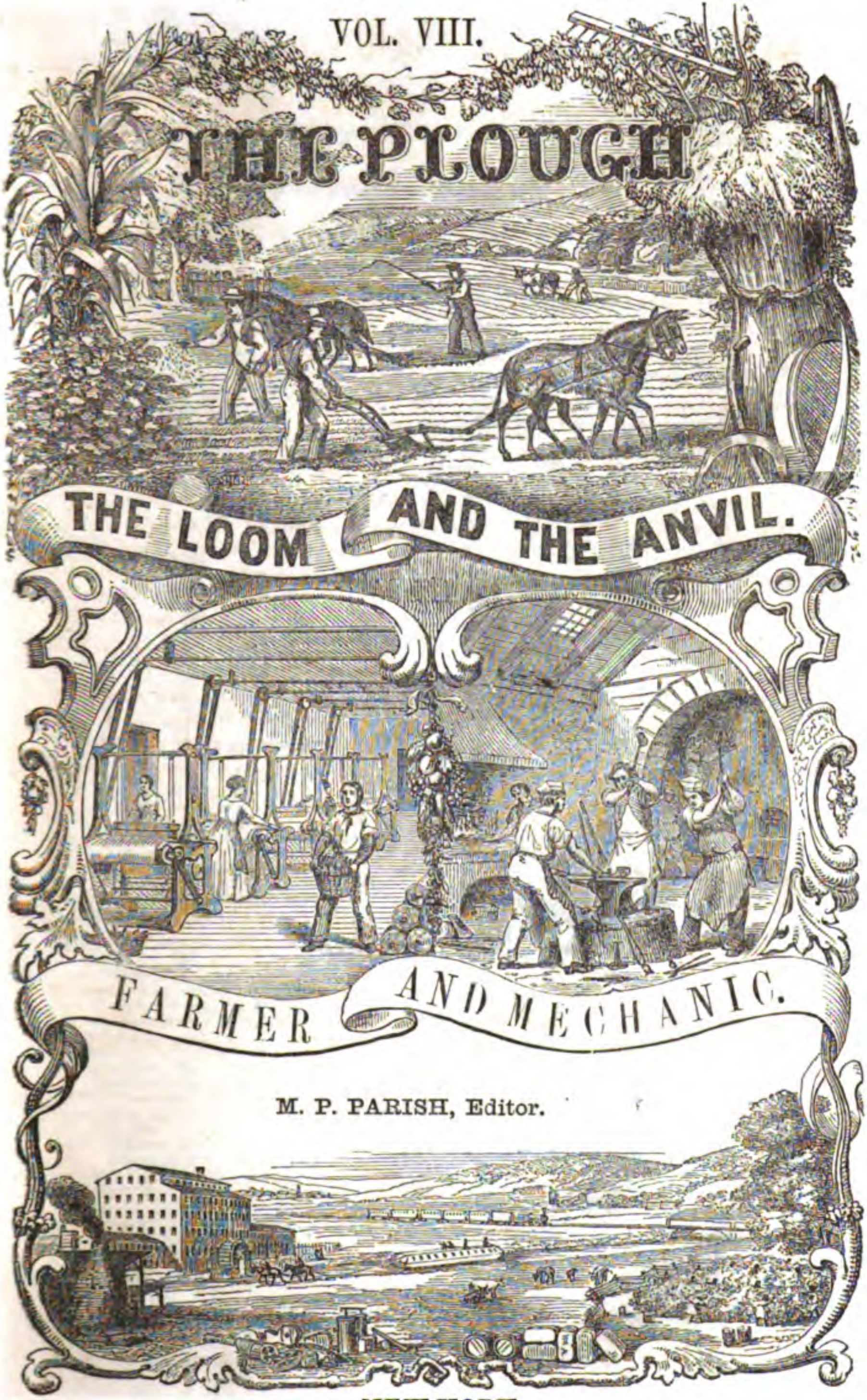

VOL. VIII.

THE PLOUGH, THE LOOM AND THE ANVIL.

FARMER AND MECHANIC.

M. P. PARISH, Editor.

NEW-YORK.
PUBLISHED AT ROOM 19, NASSAU BANK BUILDING, BEEKMAN STREET.
1856.

Sci 120.105

JOHN A. GRAY,
PRINTER.
16 & 18 Jacob street.

33-224
24-2

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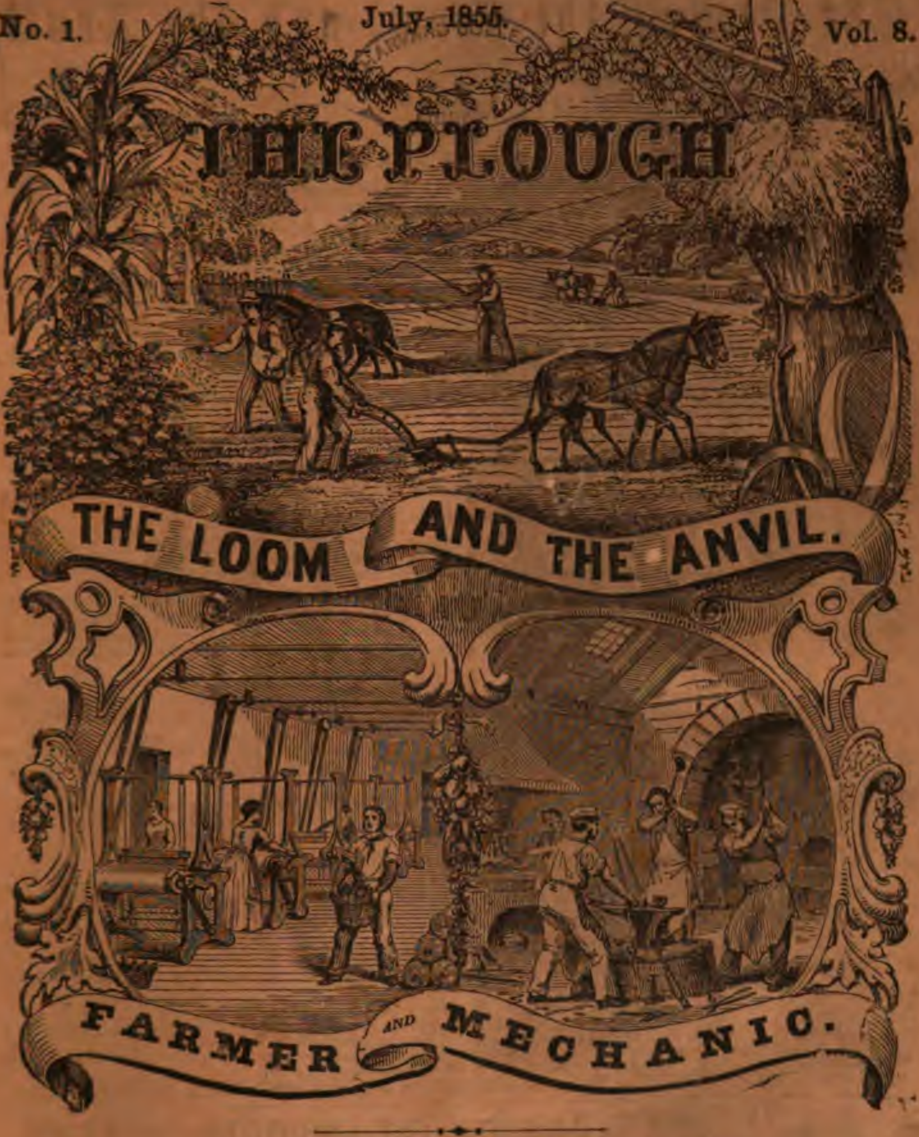

THE PLOUGH, THE LOOM AND THE ANVIL.

FARMER AND MECHANIC.

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New-York State Agricultural Society,
State Agricultural Rooms, Albany. Feb 20, 1854.

At the Show of the Society, held at Buffalo, in September last, a *Cattle-weighing Machine* was erected by Messrs. T. & B Fairbanks & Co., of St. Johnsbury, Vt. The Scales of Messrs. Fairbanks were selected as most likely to give satisfaction to the exhibitors of fat cattle. The judges appointed on miscellaneous articles awarded the first premium of the Society for the machine which was erected by them,—and the judges on fat cattle, who superintended the weighing of all cattle exhibited, expressed their approbation of the great accuracy of the machine.

BENJ. P. JOHNSON. Cor. Secretary.

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The Plough, the Loom, and the Anvil.

Vol. VIII. JULY, 1855. No. 1.

THE MINING OF GOLD.

The immense change in the quantity of gold annually converted into coin, can not fail to have some material and permanent influence upon the money value of merchandise. The difference between ten and twenty millions of annual product, for a single year, is not of much account; and this was the maximum variation in the first quarter of this century. But now the difference is tenfold this amount, and this increase of annual product promises to be permanent. Let us look at this. The entire quantity of metallic coin in this country was estimated at from $9,000,000 to $16,000,000; and in 1821, from $18,000,000 to $20,000,000. From that time to 1841, it appears by the Custom-House returns, that the importation was $181,589,814, while $138,085,922 were exported, leaving in the country $43,003,892. To this add the quantity in the country already, estimated, as above, at $19,000,000. Deduct the quantity annually used in the arts, supposed to be $500,000, and the quantity lost by wear, estimated at ¼ of one per cent, or, taking these two items as absorbing $1,000,000, add the product of domestic mines, estimated at $6,000,000, and the result gives, as the estimate of the amount of gold and silver in the country in 1841, equal to $57,503,892. This gives a decennial increase of 73 per cent.

The average annual product of gold and silver coin in the world, for the first half of this century, is estimated at $60,000,000. Of this about one half is supposed to be used in various manufactures of wares, etc. California and Australia each now yields about $80,000,000 annually. Hence the annual product of gold and silver must now be about $200,000,000. If $60,000,000 was the annual product a few years since, one half only of this being kept in the currency of the world, and the product is now as above stated, allowing even $50,000,000 to be used in manufactures, we shall have an annual increase of coin amounting to $120,000,000.

It is true that the commerce of the world is greatly extended, but not in any ratio to compare with this. The world's population does not greatly increase from year to year, and the changes produced by the progress of civilization and refinement is, unhappily, very far behind any such proportion as is denoted by these figures. In our own largest cities, luxury, and dissipation and extravagance do increase at a fearful rate, but these are only small excrescences, very limited pustules on the surface of the great body politic. Our agricultural and mechanical population, as a whole, maintain the simplicity of manners and moderation of expenditure, which marked those classes in our earlier history. The changes that have occurred have been chiefly, perhaps, in a more thorough and more expensive education of both sexes, and this change is for the better. On the other hand, with the great improvements made in the mechanic arts, the various products of the factory and the shop are very much cheaper now than twenty years ago.

An article in the Review of our learned friend De Bow, commented upon in one of our late numbers, contains the following passage: "It would be asking an impossibility to demand nothing but specie in payment, when the exports of cotton alone are considerably more than the whole annual produce of gold and silver in the world." The whole crop of cotton being within $100,000, the mistake of this writer is quite obvious. He must have made his comparison from very imperfect statistics.

We find an article in the February number of this Review, (De Bow's,) which presents a quite extensive view of this production; and though we have taken no opportunity to compare these statements even with our own figures, we copy them, the character of the Review, apart from the apparent familiarity of the writer with the topic discussed, being sufficient to entitle them to careful attention. The writer proceeds as follows:

The gold regions of the United States are two: the "Appalachian gold field," and the California, or "Sierra Nevada gold field." Gold in the Appalachian mountains is first mentioned in Jefferson's Notes on Virginia. It was first obtained in North-Carolina in any considerable quantity. The precise date of its first discovery is unknown. In 1799 a lump described as of the size "of a small smoothing-iron," was found in North-Carolina. About 100 pounds of gold had been found in that State up to the year 1830. The first native gold of this country was coined at the United States Mint in 1825, and up to 1830 four fifths of our gold coin was from native metal. From 1804 to 1827 North-Carolina had furnished all the gold produced in this country, amounting to $110,000. In 1829, Virginia furnished $2500 worth, and South-Carolina $3500—the first from these States. In 1830, Georgia made her first deposit, to the amount of $212,000. There were then some six or seven thousand persons engaged in gold-washing in that State. North-Carolina had nine different *placers*; and in South-Carolina about 200 persons were engaged in the business, but with small success. In 1838, gold was considered so abundant in the Southern States, that the government established three mints for the coinage of bullion, one in North-Carolina, one in Georgia, and one in New-Orleans.

The production of gold in the Appalachian field attained its maximum in the period from 1828 to 1845, and then declined rapidly till 1853. In 1836 four gold mines were worked in Virginia, but the yield was small. In South-Carolina, in 1848, there were eleven mines, but they only produced about $50,000 annually. Virginia, from 1830 up to the present time, has produced from $50,000 to $100,000 worth of gold annually. Some of the most promising mines in the State have recently been purchased by English companies, who will soon test their capabilities. The results of the speculation are not yet known. There are now eleven mines in operation in the State. North-Carolina is still considered to be the richest in gold mines. Several new companies have recently been organized. The Gold Hill mines of North-Carolina are the richest in the Atlantic States. A New-York company, with a capital of $1,000,000, is now working them. They have been sunk to the depth of 340 feet, and the auriferous quartz is found to be richer and more abundant the deeper they go. These mines have yielded $1,500,000 since 1843. There are nine mining companies now in the State.

Gold mining in *South-Carolina* was almost entirely abandoned, until the richness of the Dorn mine was discovered, in 1852. It is owned by a single individual, and is said to be the richest gold mine in the Atlantic States. Some of the best ore is worth $2000 per bushel; at this mine a yield of $5 per 100 pounds is thought to be a poor one. Up to 1853 an amount equal to $300,000 is said to have been taken from an excavation a little over 300 feet long, 12 deep, and 15 wide. The richness of the mine is now thought to be declining.

Georgia produced $500,000 worth of gold annually until 1853, when the amount had declined to $58,896. Some of the abandoned mines have been recently resumed.

Tennessee and *Alabama* have yielded a few thousand dollars' worth of gold annually for the last 20 years, but the prospects for the future are poor.

New-Mexico is probably rich in gold. Near Santa Fé there are two *placers* which have yielded from $30,000 to $250,000 per annum, when worked. But little is known, as yet, of the mineral wealth of New-Mexico, but it is believed to be considerable.

Of *California* we need not speak, for it is of wide-world renown—a perfect El Dorado, such as even fable has scarcely been able to describe. There even the most extravagant dreams of hidden treasures have been realized. The discovery of the gold mines of California is to be ranked among the great events of the 19th century. Its influence upon the march of civilization has been so great, that we may say that it is the last link added to the chain connecting America with Asia; it has led directly to the opening of Japan. The moment it was known that, in California, unlimited quantities of gold could be had for the mere digging, thousands flocked thither by land and sea, and the whole world was bent on California.

The existence of gold in California was long known to the Jesuit fathers, before the Mexican war. A mine was worked near the mission of San Fernando, by a Frenchman named Baric, in 1843; and specimens of gold-bearing quartz were brought from California more than 30 years ago. But it required the eyes of an Anglo-American to see how long and broad the California mines were; Spanish eyes had been wandering over the country some 200 years without seeing any thing remarkable.

The year 1848 is memorable in the annals of gold digging; for in that year it was that a few inquisitive Americans, in the month of February caught the first glimpse, on the Sacramento, near Sutter's Fort, of the as-yet-untold treasures of California gold. They had just dug a mill-race for letting the water of the American river upon the wheel of a new saw-mill. The first water that flowed through exposed to their eyes the glittering dust. They endeavored to keep the secret, but in vain; the entire population of San Francisco, then only a few hundreds, Governor Mason and all, rushed headlong to the "diggings." All California was aroused, and when Governor Mason arrived, he found the diggings a place of the utmost excitement. All California was there, to the number of some 4000, and they were taking out the gold at the rate of from $30,000 to $40,000 worth per day! From February to the next November, after the discovery, they had taken out from $4,000,000 to $5,000,000. Single individuals averaged from five to ten ounces per day, and often as many pounds.

On the arrival of the news in the Atlantic States, of these wonderful gatherings of gold, the tide of emigration to California was overwhelming;

and, at the end of 1849, less than two years after the discovery, the 4000 diggers had increased to 50,000 Americans and 5000 foreigners.

During the years 1848 and 1849, $40,000,000 were obtained from the washings.

California, with all its miners, exhibits, as yet, no symptoms of exhaustion. It still holds the first rank among the gold-producing countries of the globe. How much gold California has thus far produced will be seen from the following table, which shows the quantity of gold that has been deposited in the United States Mint, and all its branches, by California and all the other States, since the earliest discoveries of gold in North-America :*

Years.	Virginia.	North Carolina.	South Carolina.	Georgia.	Tennessee.	Total for each year.
1804-'23..	....	$47,000	....	....	......	$47,000
1824......	....	5,000	....	....	......	5,000
1825......	....	17,000	....	....	......	17,000
1826......	....	20,000	....	....	......	20,000
1827......	....	21,000	....	....	......	21,000
1828......	....	46,000	....	....	......	46,000
1829......	$2,500	134,000	$3,500	....	......	140,000
1830......	24,000	204,000	26,000	$212,000	......	466,000
1831......	26,000	294,000	22,000	176,000	$1,000	520,000
1832......	34,000	458,000	45,000	140,000	1,000	678,000
1833......	104,000	475,000	66,000	216,000	7,000	868,000
1834......	62,000	380,000	38,000*	415,000	3,000	898,000
1835......	60,400	263,500	42,000	319,900	100	698,500
1836......	62,000	148,100	55,200	201,400	800	467,000
1837......	52,100	116,900	29,400	83,600	......	282,000
1838......	55,000	....	....	....	......	435,100
1839......	57,600	....	....	....	......	404,208
1840......	38,995	....	....	....	......	426,185
1841......	25,736	....	....	....	......	542,117
1842......	42,163	2,899,505	406,044	3,582,038	50,446	777,097
1843......	48,148	....	....	....	......	1,045,445
1844......	40,595	....	....	....	......	967.200
1845......	86,783	....	....	....	......	1,019,281
1846......	55,538	....	....	....	......	1,129,357
1847......	67,736	....	....	....	......	889,085
1848......	57,886	473,543	40,577	257,063	7,161	896,675
1849......	129,382	485,793	24,564	236,349	5,180	7,079,144
1850......	65,991	355,523	19,459	209,587	1,507	36,938,314
1851......	69,052	326,888	41,062	157,213	2,377	56,540,612
1852......	88,626	403,295	126.982	96,542	750	54,506.963
1853......	52,200	275,622	99,317	58,896	149	55,624,051
	1,408,431	7,848,664	1,085,491	6,361,583	79,970	224,392,384
1854, 3 mo's	4,631	62,332	8,044	4,167	......	11,111,098

The following amounts are included in the total: *Alabama*—$155,107 from 1837 to 1847; 1848, $14,462; 1849, $10,700; 1850, $6538; 1851, $3962; 1852, $254; total, $191,023. *New-Mexico*—1848, $682; 1849, $32,889; 1850, $5392; 1851, $890; 1852, $814; 1853, $3632; total, $44,299. *Oregon*—1853, $13,535; first three months of 1854, $445. *California*—1848, $45,301; 1849, $6,151,360; 1850, $36,273,097; 1851, $55,938,232; 1852, $53,794,700; 1853, $55,113,487; total, $207,316,177; first quarter of 1854, $11,031,479. There were also received, from miscellaneous sources, in the whole period at the Mint, $48,161.

---

* General Rafael Espinosa, Governor of Lower California, has recently discovered rich gold and silver mines near San José, Lower California. One silver mine of immense richness is spoken of, the mouth of which was closely covered with decayed wood, showing that it had been worked at some remote period. Near the mine stands an old dilapidated house, the walls of which are ornamented with specimens of antique painting in Indian colors, and inside the walls is a huge tree, towering in solitary majesty. A coal mine of uncommon richness has recently been discovered this side of Cape St. Lucas. The discoverer is taking steps to secure it from the Mexican government, when he proposes to form a company for the purpose of working it. It is within eight days' sail of San Francisco, and near a good landing.

From the preceding table it will be seen that up to the beginning of 1854 there had been deposited in the United States Mints the following amounts:

From the Atlantic States,	$16,970,162
New-Mexico, Oregon, and various sources,	105,995
California,	207,316,177
	224,392,334

The actual *manifested* shipments of gold from California fall short of the above two hundred and seven millions by $3,500,000, which is the amount carried away by passengers in small and large sums.

The following table, which we find in Mr. Whitney's *Metallic Wealth of the United States*, is an approximation to the grand total of the gold produced by California up to the beginning of 1854, most of the items being from actual returrns:

Deposited in United States Mint and branches up to Dec. 31, 1853,	$207,316,177
Shipments to foreign ports in 1848, 1849, and 1850, (estimated,)	10,000,000
Taken out of the country by foreign miners, chiefly Mexicans, in 1848 and 1849, (estimated,)	10,000,000
Shipped to Europe in 1851,	3,392,760
Shipped to South-American ports in 1851,	2,372,000
Shipped to Europe in 1852,	6,000,000
Shipped to South-America and Asiatic ports in 1854,	1,000,000
Shipped to England in 1853,	5,000,000
Shipped to other ports in 1853,	1,600,000
In circulation in California, *in transitu*, and otherwise absorbed, (estimated,)	13,319,063
	$260,000,000

This enormous sum of gold was produced by the mines of California between 1848 and 1853, inclusive, as follows:

				lbs. Troy.
In 1848,	$5,000,000	representing of pure gold,		20,150
1849,	20,000,000	"	"	80,600
1850,	45,000,000	"	"	181,400
1851,	65,000,000	"	"	262,000
1852,	62,500,000	"	"	252,000
1853,	62,500,000	"	"	252,000
	$260,000,000			1,046,150

Having in the preceding pages given a brief sketch of the gold regions of the United States and the amount of their production, we now proceed to glance at the principal gold regions of other countries:

The gold mines of *Russia* are chiefly on the eastern slope of the Ural mountains, in the eastern part of Siberia, and in the Caucasus. The western slope of the Ural yields but little. Formerly, gold was found in the region about Archangel, but these mines have not been worked since the commencement of the present century. The gold mines of the Ural and of Eastern Siberia have acquired, during the last twelve or fifteen years, great importance. The mines of Eastern Siberia are by far superior to those in the Ural, the amount of gold found in the latter being to that of the former as 1 to 6. The Ural gold region extends over a surface thus far unknown, new mines being constantly discovered. Gold was first discovered in these mountains in 1774, but the exploitation of the mines assumed no importance until 1819. The greatest amount of gold is obtained from the washings of the sands, the yield of which is very small ordinarily, 128,000 parts of sand giving only one part gold.

From 1823 to 1839 the gold mines of the Ural mountains produced 432 Russian pounds weight of gold, equal to 389.92 pounds avoirdupois. The total value of the gold produced by all the mines of Russia from 1819 to 1848, inclusive, was 223,900,000 roubles of silver, equal to $167,925,000. Their production in 1848 was 21,637,300 roubles of silver, equal to $16,227,975.* Up to 1850 the Ural gold washings have yielded only 932,270 pounds Troy of gold. The government first commenced their exploitation in 1814. The Russian gold mines are thought now to be on the decline.

In *England* and *Ireland* gold is found in many places in very small quantities. The Romans mined extensively for gold in Wales, but not with much success. In the reign of James V. several hundred men were employed in washing the sands of Dumfriesshire for gold, but with what success we are not informed. Gold is still found in small quantities in the tin mines of Cornwall, where it has been observed for hundreds of years.

Some years ago, a lump of gold weighing 22 ounces was found in the Wicklow mountains of Ireland, which created an immense excitement. A gold mining company was immediately formed, and a large capital wasted in endeavoring to find the *lodes* in which the precious metal originated.

Previous to the year 1853 the entire amount of gold produced by Great Britain did not exceed four ounces per annum. Since 1853 the appearance in England of a work entitled, "*The Gold Rocks of Great Britain and Ireland*," by John Calvert, filled with the most extraordinary stories of golden treasures existing in England, Ireland, and Scotland, has created an extraordinary excitement among the English on the subject; but it does not appear that any of Mr. Calvert's golden dreams have as yet been realized. Great Britain is decidedly poor in gold mines.

The same may be said of *Germany*. Some of its gold mines have been worked ever since the days of the Romans. The principal mines are in Transylvania, Hungary, Salzburg, Tyrol, Styria, and Bohemia. The entire production in 1820 was 2682 pounds; in 1848, 5645 pounds, and the yield for 1854 is estimated at 6000 pounds.

In *France*, the sands of the Rhine continue to be washed for gold, but only on a small scale. Formerly the yield was very considerable. In 1846 the gold washings of France yielded only about $9000. There is no gold, in fact, found in France worth mentioning. The poorest spot in California is richer in gold than all France.

Spain, in ancient time, if we may believe Diodorus, Pliny,† Strabo, and other ancient writers, was immensely rich in gold. It was found both in the solid rock and in the sands of the rivers—in those of the Tagus and Douro. In the time of Pliny, A.D. 23, Spain was the richest gold country known. Gallacia and the Asturias yielded 20,000 of gold annually. From Pliny's account of mining operations, it appears that in those remote times, 1800 years ago, not only were the ancients well versed in smelting, but that the arts of *cupelling* and *amalgamating* were fully understood and practised.

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* *Etudes sur les Forces Productives de la Russie*, par M. L. de Tegoborski, vol. 1, pp. 278–294. This work is official.

† Metallis, plumbi, ferri, aeris, argenti, auri tota ferme Hispania scatet.—*C. Plinii Secundi*, Hist. Mundi, lib. iii. 4.

Diodorus and Pliny speak of these arts as being then of the most ancient origin.

The gold mining operations of the ancients in Spain extended over a large surface, as may be seen at the present day. The places worked seem to have been thoroughly exhausted; but Spain still contains gold in considerable quantities, though the amount produced is small. If Spanish industry at the present day was equal to that of the Romans, gold would undoubtedly be produced by them in large quantities. The sands of their rivers still produce *gold*, but the washings are confined to the river Sil and Salor, which yield only about $8000 per annum.

Italy contains gold; and mines which were worked in the time of Pliny *still* continue to yield gold. The sands of the Po still contain gold. The principal gold operations of Italy are at present carried on in Piedmont and Savoy. The gold mines of the province of Ossola, still worked, must have been very rich in ancient times; for Pliny informs us that the Roman Senate forbid over 5000 slaves being employed in them lest the price of gold should be reduced by the large quantity produced. In 1829 these mines yielded only 250 pounds Troy. A French company has recently commenced working a gold mine near Genoa.

In *Central Asia* gold is found in various localities. In 1851 the Russians established gold washings in the Caucasus. The sands of the rivers of this region were washed for gold long before the Christian era. Thibet is also supposed to be rich in gold. The rivers of the western portion of that country are especially referred to as abounding in auriferous sands. They are estimated to yield about 10,000 ounces annually.

Southern Asia, that is, Asia south of the Himalayan chain of mountains, in ancient times yielded vast amounts of gold. By many the Ophir of Solomon is thought to have been somewhere in Southern Asia. Gold is still found in many localities in India. The washings of the Burrampooter are estimated to yield from 30,000 to 40,000 ounces annually. Many of the streams of the Burman empire produce gold. Ava produces about 2000 pounds annually. The Malayan peninsula is represented as rich in gold.

In *China* and *Japan* there is much gold, though we have no very reliable statistics of the amount of their production. The Japanese government forbids the exportation of gold. The gold-bearing formations of Siberia enter into China, but they are little worked by the Chinese, the government having suspended mining operations "in order to preserve the balance of circulation." This fact, whatever may be thought of Chinese political economy, shows that these mines are capable of producing abundantly.

Borneo has extensive gold washings. About 5000 Chinese are engaged in the washings of the western coast; and according to Mr. Brooke, the Rajah of Sarawak, the annual production is $5,000,000. The other East-India islands also produce considerable quantities of gold. Gold dust is very abundant in *Sumatra*, and is an article of considerable traffic.

The whole product of Southern Asia, including the East-India islands, is estimated at from 25,000 to 30,000 pounds annually.

Africa, according to the accounts of all travellers who have penetrated to the interior, is rich in gold. Owing to the climate chiefly, all attempts to engage in mining operations have proved disastrous. The gold washings of Nubia, Senegambia, and Bambuck are important. According to Russegger, who travelled through Nubia in 1838, the great chain of mountains which traverse the interior of Africa from ENE. to WSW., contains large amounts of gold of a remarkably yellow color, and of a very pure quality. The annual production of Africa at the present time is about 4000 pounds. The next El Dorado will probably be in Africa.

Australia, as all know, is now second only to California as a gold-bearing country. The discovery of gold in Australia illustrates the value of geological science. Mr. Murchison, in examining the Australian cordillera, in the south-eastern corner of Australia, discovered such a remarkable resemblance between the geological position and mineralogical character of the rocks of the Australian and Uralian cordilleras, that he predicted the discovery of gold in Australia. Cornish miners immediately began to "prospect," and gold was discovered. Mr. Murchison, soon after his geological surveys, wrote to Earl Grey on the subject of encouraging the search for gold in Australia; but the Earl "took no steps whatever to promote the discovery of gold, on the ground that the production of this metal would interfere with *sheep-growing!*" We think that Earl Grey must have felt a little *sheepish* after reading the following facetious remark in the *Quarterly Review:* "We were quite unprepared," says the *Review*, "for such pastoral predilection in the colonial office under Lord Grey's presidency. To realize Arcady in New South Wales, and convert convicts into Strephons, might be a very amiable conception, but would hardly justify the minister of a great commercial empire—and, above all, a zealot of *Free Trade*—in an attempt to *cushion* rich sources of mineral wealth opened in a colony under the watch of his intelligence."*

While Earl Grey was dreaming of sheep-growing, a Mr. Smith applied to the government for a reward for the discovery of certain auriferous deposits, which he agreed to point out as soon as the reward was paid; but while Mr. Smith was awaiting the movements of the government, a "returned Californian," named Hargroves, found gold on the Macquairie river, a piece weighing 13 ounces having been dug up. Without asking for a reward, Hargroves informed the government of his discovery, and then there was a general rush for the second California.

Earl Grey now forgot his sheep-growing, and the government began to stir in the matter, by laying claim to the gold region, granting licenses to dig for £1 10*s*. per month. It also instituted a geological commission to explore the country.

The Australian gold region extends over a space of at least nine degrees of latitude, and occupies a breadth of 50 miles or more.

The discovery of gold in Australia was first announced in May, 1851. In December of that year 12,000 persons were digging for gold at the Mount Alexander gold-field. A shepherd discovered a block of quartz lying upon the surface, from which 60 pounds of gold were taken. Nearly all the gold of Australia is obtained from washings, all of the quartz-mining companies, without exception, having failed. The quartz veins are found not to be rich in gold; and investigations made in London with regard to the quartz-gold mining companies of Australia, seem to indicate that they are mostly swindling concerns.

The auriferous deposits of Australia are similar to those of California. The gold is remarkably fine, and contains from three to seven per cent of silver. The total amount of pure gold produced by Australia, since the first discovery up to the beginning of 1854, is estimated by Mr. J. D. Whitney, after a careful examination of all the returns and estimates, to be as follows:

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* Quarterly Review, XCI, 511.

	lbs. Troy.
1851, (year of discovery,)	30,000
1852,	330,000
1853,	210,000
Total since discovery,	570,000

South-America has never been a great gold-producing country; whilst its silver mines, ever since the discovery of America, have poured forth an unparalleled stream of wealth. In 1800, according to Humboldt, it produced 691,625 lbs. of silver, and only 33,524 lbs. of gold, of which 9900 lbs. came from Brazil. In 1850, South-America produced only 24,000 lbs. of gold. The countries yielding gold in South-America are New-Granada, Venezuela, Brazil, Bolivia, and Peru. The total amount produced by New-Granada since 1804 is estimated at $204,085,328. The principal mines are in the provinces of Antioquia and Veraguas. New-Granada produces annually about 13,276 lbs., and Brazil about 6000 lbs. The total amount of gold produced by New-Granada, from the earliest mining operations up to 1841, is $376,500,000; and the total amount produced by Brazil up to 1845, is 3,576,192 lbs. Troy.

Mexico yields gold in scarcely any other way than as a constituent of its argentiferous ores, which yield a very important per centage of gold. M. Duport estimates that per centage, for 1840, at one eighth in value. There is probably much gold in Mexico which will not be discovered until the Anglo-Americans get possession of that country—an event not far distant.

Central-America, according to Mr. Squier, and other travellers, is rich in gold; but we have no statistics on the subject.

COMMERCE OF THE UNITED STATES.

IMPORTS AND EXPORTS.

THE annexed statement exhibits the value of merchandise imported into the United States from each foreign country, and the value of merchandise exported from the United States to each foreign country, during the year ending June 30, 1854:

	Foreign Imports.	Domestic Exports.
Russia,	$1,544,235	$335,521
Prussia,	47,773	......
Sweden and Norway,	515,178	1,085,602
Swedish West-Indies,	22,590	12,741
Denmark,	8,097	87,870
Danish West-Indies,	286,044	928,924
Bremen,	14,643,927	8,386,077
Hamburg,	2,322,971	2,255,519
Holland,	1,695,970	2,299,710
Dutch East-Indies,	1,041,600	109,203
Dutch West-Indies,	534,978	371,380
Dutch Guiana,	104,236	53,745
Belgium,	3,462,241	3,848,890
England,	140,388,733	135,111,708
Scotland,	5,820,469	3,097,662

	Foreign Imports.	Domestic Exports.
Ireland,	229,335	1,006,017
Gibraltar,	59,673	447,445
Malta,	83,695	108,528
British East-Indies,	5,378,321	567,193
British West-Indies,	1,126,417	4,756,398
British Honduras,	228,954	203,913
British Guiana,	47,489	718,096
Cape of Good-Hope,	448,903	292,628
British American Colonies,	2,206,021	4,693,771
Other British Colonies	4,344	......
Canada,	6,721,539	10,510,373
Australia,	214,202	2,999,635
France on the Atlantic,	32,892,021	29,749,466
France on the Mediterranean,	2,889,372	1,218,786
French Guiana,	29,618	100,148
French West-Indies,	161,085	551,525
Spain on the Atlantic,	358,504	1,390,348
Spain on the Mediterranean,	1,579,074	1,212,368
Teneriffe and other Canaries,	39,598	19,613
Manila and other Philippine Islands,	2,265,282	27,852
Cuba,	17,164,339	3,228,116
Other Spanish West-Indies,	2,850,353	990,886
Portugal,	243,592	127,150
Madeira,	30,007	47,708
Fayal and Azores,	21,584	10,030
Cape de Verds,	8,985	30,037
Italy,	971,718	1,586,327
Sicily,	959,300	246,151
Sardinia,	85,676	188,305
Tuscany,	1,152,717	11,735
Trieste and other Austrian ports,	741,919	1,697,319
Turkey, Levant, etc.,	803,114	219,496
Hayti,	2,357,222	1,880,187
Mexico,	3,463,190	1,091,870
Central Republic of America,	2,360,422	250,539
New-Granada,	1,478,520	855,254
Venezuela,	3,072,649	1,131,604
Brazil,	14,110,387	4,046,857
Oriental Republic of Uruguay,	457,179	450,855
Argentine Republic,	2,144,971	658,720
Chili,	3,332,167	1,942,330
Peru,	1,005,406	651,707
Ecuador,	57,534	......
China,	10,506,329	1,293,925
Asia generally,	60,730	......
Africa generally,	1,385,568	1,716,924
South America generally,	235,693	47,241
South Seas and Pacific Ocean,	10,103	886,779
Sandwich Islands,	119,130	......
Atlantic Ocean and uncertain places,	60	......
Total,	$301,494,094	$252,047,806

The above statement of exports only includes domestic merchandise shipped to the places designated. The value of foreign merchandise, during the year ending June 30, 1854, was $23,748,514. This makes the total exports for the year, $275,796,320. This includes $38,062,570, of gold and silver coin and bullion. The comparative table given above shows the extent of our foreign trade with each country.

MANUFACTURES IN SOUTH-CAROLINA.

From the census of 1850, it appears that the following is the condition of manufactures in that State:

Capital employed, - - - - - -	$5,166,865
Annual product, - - - - - - -	7,072,513
Produced in families, - - - - -	919,525

The number of hands employed was 7009.

BUSINESS OF THE NEW-YORK CANALS.

From the Report of the late Auditor of this department, it appears that the whole amount of Tolls collected, the last season of navigation, upon the canals of this State, was $2,773,566.35.

The following table exhibits the quantity and value of the agricultural productions, merchandise, etc., ascending and descending, within the same period:

	Tons.	Value.
Products of the forest, - -	1,768,745	$14,384,785
" animals, - - -	78,684	11,666,296
Vegetable food, - - -	903,735	38,331,500
Other agricultural products, - -	10,420	1,983,068
Manufactures, - - - -	258,021	9,796,420
Merchandise, - - - -	406,022	123,107,863
Other articles, - - -	740,235	10,954,380
Total, - - -	4,165,862	$210,284,312

The whole number of barrels of flour arriving at tide-water, was 1,249,453. Bushels of wheat, 3,523,800. This wheat, turned into flour, at five bushels for each barrel, would amount to 704,760 barrels, giving a total of 1,954,213 barrels. The quantity of corn arriving at tide-water was 12,813,929 bushels.

This makes a decrease in the revenue, as compared with 1853, of $491,152, and in tonnage of 81,991 tons. There was a decrease of flour and wheat amounting to 419,774 tons, and in corn and oats an increase of 270,231 tons.

POTATOES.

[*Translated from the French manuscript by the Editor.*]

The production of potatoes, in the city and State of New-York, is of vital importance. This tuber, at this season, commands an enormous price, and during the whole winter, has cost more than any other article of food. Comparing the price of this article in Pennsylvania, we find it to be one tenth what is paid for it in New-York.

The population of the city of New-York is more than half a million of inhabitants. It consists of Americans, descendants of the English, who, for their tables, demand beef and potatoes; of Germans who sing, "Potatoes are ruddy and fine, and also as white as alabaster, and are good for men, women, and children, and are the true plaster for the stomach;" the French, who make part of the population of the Empire City, repeat in their country, "Long live mirth and the potato." Thus this nation, who are accustomed to use the potato in their own country, not only eat it with pleasure and delight, but with greediness, and deprived of this production, they feel the want of it, and are discontented; and although the potato is at an exorbitant price, they will procure it, instead of some other kind of food which would be more nutritious and at a more moderate price, as rice, *semoulia*, (paste baked of Hecker's farina,) farina, beans, pearl barley, etc. But custom makes law. Men prefer that to which they are accustomed from infancy, and perhaps there is another consideration which leads them to prefer the potato.

Let us look at this. The population of New-York is composed, to a large extent, of workmen laboring in the ship-yards and in various manufactures. The women are not less busily employed, but labor in different shops, and thereby furnish their share of the family expenses. So the members of the family are all absent from their homes, the fire is extinguished, and all culinary processes cease. On their return in the evening the supper must be prepared speedily—hunger demands this. The fire is hastily kindled with coal or coke, or wood, and in an hour a supper of potatoes, beef steak, roast beef, or a chop is prepared, with coffee or tea with milk, which revives the strength of the laborers, restores their good humor, and makes them happy, secures for them a quiet rest, and prepares them for the labor of the succeeding day. But this is not all. That which remains of the evening repast serves for the morrow's dinner in the workshop or store, and for the noon repast of the children who remain at home, after having taken a moderate breakfast, and prevents the necessity of the loss of time and of labor, which would otherwise be required in its preparation. So potatoes are indispensable to the city laborer; and the farmer, if he understands his own interests, will take especial care to cultivate this tuber as a source of profit.

But why is it that this article is so dear and at the same time so easily cultivated? This tuber originated in America, and was imported with great care into Europe, and when it had become common in Germany and in the countries of central Europe, France had not any knowledge of it. It was during the Seven Years' War that a French officer, named Parmenthier, who was taken prisoner in Prussia, was fed upon it, and was greatly pleased with it. When his liberty was restored to him and he returned to his own country, he carried a sack of potatoes with him, and presented them to the king, and sought his assistance in introducing them as an article of food. I pass in silence over the difficulties which he mét in this effort, but he has furnished his country with the means of feeding millions of Frenchmen, and at this day his name is pronounced with gratitude and with respect as a benefactor of the nation.

But the potato is most productive in the west of Europe. Poland, after overcoming many difficulties, cultivates it extensively, so that it has become the principal article of food for its inhabitants, and a source of wealth to the producer. It is used in the manufacture of spirits, and through the influence of Pistorius, a Prussian, by means of apparatus of his invention, alcohol is distilled from it not inferior to that obtained from rye.

It is remarkable that the potato, originating in America, is now cultivated more extensively in its adopted than in its native country, and that it should become of superior quality, more farinaceous, more nutritive. It is also more productive and less liable to decay, and richly rewards the labor of the producer.

In New-York a bushel of potatoes costs ten shillings. In Poland, in the country, four bushels can be purchased for one shilling and two cents; and in the capital, at Warsaw, they cost one shilling a bushel, and the price does not exceed more than three or four shillings even in a distressing famine. It is sufficient to say that a gallon of spirits, which is produced from potatoes, is sold for one shilling and two cents, and one can judge of the immense extent of the cultivation of this tuber, which yields four, six, and even ten thousand bushels to the producer.

In France potatoes are cheap, and furnish the common food of children who attend school, and of laborers, who are in the habit of using them at their noon meal, fried in lard, and which is sold to speculators—a hundred being served together, which suffice for one person. These are sold in Paris in the streets, cooked by steam, at one cent a pound, which the laborer eats with much pleasure.

I would make a few suggestions in respect to the quality of the potatoes of Europe. The ordinary kind are more or less farinaceous, and are placed in the earth after the frost is out. These ripen by midsummer or in June. They are generally buried in sand. They are difficult to preserve, and great care is taken to keep them sound for seed. Another quality is ordinarily called "Michaelmas," because served in the month of June. The gathering of them is commenced in last of September. Another kind of potatoes is oblong, red and orange colored; but these are a luxury, and served only on the tables of the rich.

It is proper to say that America is not the only original country of the potato. Asia produces the same kind of product. The ocean also furnishes a growth analogous to this, under the name of banana; and that which shows the eternal will of Providence to distinguish the races of men is this: the potato of the interior of Africa is as black as the skin of the negro, while it has the same savory, luscious taste as the American potato, which is yellow and sweet.

We pass on now to the deterioration of this crop, and to the means necessary to prevent its complete destruction. For many years the potato has suffered from a disease which materially injures it and makes it unwholesome. This disease has been progressively developed in Poland, in Germany, in France, in Ireland, and at last in this, its native country. Some have called it cholera. In the interior of the tuber a sac is formed, which is filled with a blackish juice, which not only renders a part of the fruit unfit for consumption, but is actually poisonous. Naturalists have sought eagerly to discover the nature and the cause of this disease. Some have supposed it to be occasioned by the prepared manures, and perhaps not without reason, since the hydrogen gas, which this manure contains, confines the moisture in the fruit, and the great heat confines it in the interior of the tuber, and hinders the evaporation of the humid particles which it contains, and which remaining there, in a stagnant condition, at length attack it, and become the cause of the malady. Others suppose that the use of burnt bones is the cause. Others affirm that the ground being partially covered with stones, produces this effect, since they hinder the heat of the sun from penetrating the soil, and impede the necessary vegetation. There may be some reason in this, since the fruit, being deprived of heat, can not develop itself. But neither of these has regard to the primary causes of this disease, which we will explain as, in our own experiments, they have come under our observation.

Providence has created man, and has given to him strength and vigor, as he has to all his creatures, for securing a succession of generations. The potato has been left to rely on a fictitious art for its reproduction; that is to say, the planting of the tubers. But it deteriorates; it has become weak, and has lost its vital forces, and no person is yet found to aid in its regeneration.

Being always transplanted without being renewed, the potato has diminished, has lost its vital force and vigor, and its old age has produced this disease, since it is deprived of the strong juice necessary to its proper growth. Its juices may be compared to the blood of animals, and the effects of disease are analogous.

In Poland certain agriculturists, among whom I was one, having perceived the loss of vigor in this tuber, and a general use being made of it in the manufacture of spirits, and the amount of this crop annually diminishing, they sought for the cause. At length they became convinced that the nature of the potato had deteriorated, and they resolved to obtain the seed for the following year, instead of planting the tuber, and they obtained a new growth, but smaller, and instead of being farinaceous, it was glutinous and without sweetness, and their hopes were disappointed. But they would not cease their efforts, and they replanted these potatoes the following year. The next harvest exceeded their expectations, the potatoes being large and farinaceous, and when used in the manufacture of spirits, they were much more productive. This method of renewing the crop was continued for six years. The result was entire success, and when the potato was generally attacked by this disease in Europe, which was considered as a form of cholera, their crop was liberal. Thus was it proved that this renewal of the seed was essentially beneficial.

The potato is originally from Mexico, and has been naturalized in Europe and in North America, but has continually been renewed by planting the tuber, and has thus lost its vital force, and is threatened with entire destruction.

One of the agriculturists of this country, Mr. Goodrich, has attempted the renewal of this crop from the seed which he obtained in Mexico, but he complains that the fruit does not meet his expectations. Let him console himself, since we have seen that the same results happened to the farmers of Poland; and if Mr. Goodrich replants the potatoes which he has thus obtained in succeeding years, success will crown his efforts.

The reason why the potato does not come to maturity the first season is, because the seed is obtained from a country almost tropical, and has not power to develop itself as it should do. The fruit is not more than half matured, and a second season is necessary for it in the temperate zone. A single season in the torrid zone is as efficacious, in the development of fruit, as two seasons at the north. Farmers should not abandon their experiments on account of the want of success in those of Mr. Goodrich, but continue their endeavors to save the potato from destruction.

In cultivating the potato, it should be remembered that it is capricious in its nature. It should not be planted two successive years in the same soil. The land should be well manured before planting, and the manure well rotted. The soil, if fertile, should not lack manure, and a gravelly soil requires it, but the latter produces a fruit more farinaceous and more savory. If planted soon after the ground is thawed, it will ripen by June, and then it should be harvested. They should then be placed in a heap, not too much elevated, and after several days they should be removed, separated from earth, and placed for the winter where they will be safe from the frost. The potato, when planted at the beginning of June or the end of May, ripens by the end of September. They should be harvested in dry weather.

As soon as the stem is out of the ground, it should be kept free from weeds, and as it increases in height, the root should be covered with earth. Any one may satisfy himself that cultivation with the plough is less beneficial than with the hoe, although cheaper for the farmer. The cutting off the flowers to concentrate the juice in the fruit, is not wise. It is true that the flower absorbs the juice and diminishes the vegetation of the fruit, but the stem which remains absorbs bad air, hydrogen gas, and communicates it to other parts of the plant. Instead, therefore, of cutting off the flowers, it is better to bury them in the earth, and thus they are destroyed, and the stem dries with them.

If it is desirable to have the potato less moist, for a new planting, or for sale in the spring, to preserve them from frost, a sort of cave may be built in an elevated and dry soil, with planks, and the potatoes placed in it, and they may be covered with boards and the dried moss or straw, and then with earth, making a kind of hillock. A layer of lime will absorb the water occasioned by a thaw. When thus prepared, the fruits that are placed in it will be kept as sound and fresh as they were at the harvest. If kept in these caves in the earth without boards, they will put out-buds and lose their vital force.

To obtain seed, choose a rich soil, not too highly manured; plant in the month of April; keep the young stems free of weeds; give them free growth, and let the fruit ripen on the stem; dry the seed in the shade, and preserve it in a dry and warm place.

Potatoes, besides being a pleasant, wholesome, and useful article of food in the family of the farmer, will serve him also with nourishing feed for pigs. So, too, in the confection of this tuber, starch is produced equal to that made from wheat. The process is as follows:

The potatoes are carefully separated and well washed. They are then grated into a vessel of water, and then are pressed and left to deposit at the bottom the farinaceous parts. The water is then poured off, and the portions of the farina that have thus been separated are pressed out, cut, and are dried in the sun. This gives starch. This mass, being broken up and sifted, gives farina. At the beginning it is necessary to hasten the process, to guard against fermentation; for starch, when left in water, will ferment. The farina of the potato can be mixed with other flour in the preparation of bread, and when so mingled it makes an excellent pudding with eggs; and if we take the white of eggs and knead this farina with them, and paste will be formed, which, when coarsely grated and dried, makes a transparent gruel.

In cooking this, it is mixed with milk, and seasoned with sugar and cinnamon; or it may be mixed with water, with a due quantity of butter, and seasoned to your taste; or, in a beef soup, it may supply the place of vermicelli.

Saniewski Felix.

May, 1855.

A COUNTRY SEAT ON THE HUDSON.

ANDERSON Sc.

MESSINA—THE COUNTRY SEAT OF J. R. LIVINGSTON, ESQ.

Whoever has not seen the country seats on the upper side of the Hudson knows nothing of the finest specimens of rural residences in America. There are in the neighborhood of Boston, many beautiful villas and cottages, designed in admirable taste and kept in the highest order, that are indeed admirable in every respect; but they, like more solitary specimens of the same kind, in the environs of many of our cities, are only suburban residences of a few acres. There are, in various parts of the country, many gentlemen's large seats, well laid out, with lawns, pleasure-grounds and gardens, in a simple and unpretending manner, highly creditable to the possessors. But nowhere in America are there to be found country residences, where nature has done so much to assist man in his attempts to create a beautiful home, as in what may be called the upper terrace of the Hudson. This includes a hill of land on the eastern shore, extending from Hyde Park to Hudson city, a distance of about 50 miles.

The peculiar advantages of this part of the river are these: First, the finest mountain and river views in the country—the river being the Hudson, in its loveliest portion—sometimes two or three miles wide—indented in outline, and varied by numerous islands; the mountains being the Catskills—their highest summit 3000 feet high—near enough to give a character of grandeur to the scene, and distant enough to possess that blue haze of atmospheric distance, which makes a mountain a bit of poetry, instead of a bare reality of rocks and trees in the landscape. Second, they have the advantage of having been held as country seats since the first settlement of the river—with much of the fine natural beauties of wood and water preserved and heightened by the fostering spirit of taste, rather than despoiled by the avaricious spirit of the mere tiller of the soil.

For almost the entire distance of this fifty miles, the east bank of the Hudson is one line of country seats—varying in extent from 50 to 500 or 600 acres. Instead of having the same general features of interest and beauty, nothing is more striking to the picturesque tourist than the highly *varied* character of these places. Every mile seems to present new groupings of headland and foreground, some new combinations of wood, water and mountain—so that no one who has seen one or two places can imagine with certainty what will be the aspect and picturesque character of the next residence. The enchanting beauty of the Hudson itself is varied and heightened, too, by its peculiar life and animation. Snowy sails, sometimes singly in calms, and sometimes floating along in the light breezes like troops of white swans; swift steamers freighted with throngs of busy and curious people; huge clusters of freight barges, loaded down with the produce of whole countries; and finally, stealing along under the high wooded banks, the river railway, whose trains fly along between the commercial and political capitals of the State at the rate of thirty to fifty miles an hour—all of these give to these finest seats on the Hudson a completeness of interest which the traveller looks in vain for anywhere else in America.

Among the finest of these residences, Montgomery Place, Blithewood, Ellerslie, Hyde Park and others, have been already described, and some of them illustrated in various other works of ours. Persons wishing to see the finest specimens of landscape gardening in the country, naturally go to these places, to study them as the best examples of the art, and there are few places, out of England, where the lover of embellished home scenery can find so much gratification and instruction.

About the centre of this upper terrace lies Messina, the seat of the late John R. Livingston, Esq., a sketch of which we present our readers this month. This house is one of the noblest in its proportions on the whole river, and is worth an examination as a specimen of a first-class mansion in the country. It was built by Mr. Livingston after his return from France, some years ago. He was so much pleased while there with the residence of Beaumarchais, near Paris, that he determined to model his home upon it. This accounts for the air of a French château, which we discover in some of its features. The design was, however, really drawn by an English architect, Brunel, the celebrated architect of the Thames tunnel—who came out to this country and erected two or three residences for different members of the Livingston family. The plan of the interior is spacious and elegant—the rooms large and finely proportioned, uniting some of the best features of both the English and French residences.

Finely varied and extensive grounds surround the mansion at Messina. There is an abundance of foliage and fine old trees, the scenery is beautiful, and the neighborhood most picturesque and interesting. Though not at present in the high condition of some of the places we have just mentioned (owing to the want of personal interest, consequent upon the declining health of the late proprietor,) it could readily, in the hands of a person of taste and fortune, be restored to its former high keeping. As it is but rarely one of the first class residences is to be obtained, we believe we shall render a service to some of our numerous readers who are annually settling in the country, by drawing their attention to a site that has long been considered one of the best in the Union.—*Horticulturist.*

We are indebted to our friend Allen, of the *Genesee Farmer*, for this engraving.

CALIFORNIA WHEAT CROP.

The wheat crop of the State for the present season has been a subject of much discussion. Our last files of San Francisco papers tell us that during the harvest, parties traversed the State for the express purpose of ascertaining the condition of things, and that the following is the result of their investigations as to the extent of the crop:

Counties.	Acres planted.	Average.	Wheat, bushels.
Marin, - - - -	335	30	10,050
Sonoma, - - -	16,353	23¼	380,207
Napa, - - - -	17,000	20	310,000
Solano, - - -	6,214	25	155,350
Yolo, - - - -	9,980	25	249,500
Yuba, - - -	3,655	22½	82,237
Butte, - - - -	3,725	22½	83,812
Placer, - - -	1,545	20	30,900
Sacramento, - - -	3,415	25	85,375
Calaveras, - - -	2,142	22½	48,195
San Joaquin, - - -	11,340	28¼	320,355
Stanislaus, - - -	4,295	14¾	63,350
Mariposa, - - -	2,365	15	35,475
Tulare, - - -	2.920	10	29,200
Contra Costa, - - -	3,785	21½	81,377
Alameda, - - -	15,490	40	619,600
Santa Clara, - - -	22,745	20	453,900
Santa Cruz, - -	6,530	50	326.500
Monterey, - - -	745	40	29,800
San Francisco, - -	445	30	13,350
Total, - -	135,024	258-15	3,439,533

During the year 1853 the imports of flour into the State were 299,547 bbls. and 199,143 sacks; for the year 1854 the imports were 150,420 bbls. and 67,349 sacks. Thus the breadstuffs trade of California has been completely revolutionized, and but a comparatively short period can elapse before the importation of flour from other parts must cease. The crop of the present year is not so large as some exaggerated estimates early in the season made it, nor is the yield per acre so great; but the progress made is remarkable, and shows the capacity of the State.

THOROUGH CULTURE—METHOD OF ANALYSIS.

The expense of a careful and reliable analysis deters many from adopting that mode of ascertaining the condition of their soils. In the *Northern Farmer* we find the following directions for investigating this matter, which, after a few trials, will not be very troublesome to a man not specially versed in chemical manipulations. We copy it for the benefit of those who wish to try it, and also to show to all who complain of *prices*, that a very accurate measurement of each element is not a matter to be disposed of in a few hours, and that it ought to be paid for accordingly.

In order to get a knowledge of the quality of soil, the portion to be analyzed should be taken from three or four inches below the surface, and should be placed in the sun or in a warm room, till it feels dry to the touch. Then weigh accurately 200 grains of it, and pass it through a common sieve, carefully weighing and noting down on paper what remains. What goes through this sieve, put into a fine wire or gauze sieve, weighing and noting as before. What passes through the last sieve, put into a glass tumbler and fill it nearly full of pure water, stir it for two or three minutes, and then let it rest for half a minute, pour off the water, retaining what has settled, and weight it. This will enable you to determine the texture of the soil and its productiveness. If a large portion goes through the two sieves, and remains suspended in the water, the soil will be productive. This a very important point for a man to understand, when he is purchasing a farm. Some of the most productive lands in our country are not so rich in vegetable and animal matter as other lands which are less productive, but they are of a finer texture, which enables them to exert a more thorough chemical action on substances brought into contact with them, so that these are more readily absorbed by the roots of the plants, and afford them more nourishment.

In order to ascertain the ingredients of which a soil is composed, weigh 100 grains of it that have passed the second sieve as above described. Place this on a piece of white paper in an oven, or on a stove as hot as it can be made without scorching the paper. After this is dried thoroughly, weigh it again, and the loss of weight will show the amount of water it contained, and indicate its capability of retaining moisture, which is a property essential to its productiveness. To determine the amount of the vegetable and animal matter it contains, having noted the weight of the soil thus dried, place it on a sheet of platina and hold it over a hot fire, stirring with a metallic rod until no blackness appears in the mass. If it contains vegetable matter only, the gas emitted will smell like burning peat. If it contains animal matter, the smell will be like that burning feathers. The loss in weight will show the amount of animal and vegetable matter contained in the soil, that can be rendered useful as food for plants by the action of water, air, and heat. To ascertain the quantity of lime, put one quarter of a gill of muriatic acid with an equal quantity of water into a glass tumbler, and set it on the scale and balance it accurately. Then weigh 100 grains of the soil dried as above directed, and put it into the acid and water, and let it remain undisturbed until the effervescence has ceased, which may take two or three hours. Then see how many grains it will take to balance the scale. If it requires ninety-four grains, six grains of carbonic acid have escaped. Now, as lime contains about forty-three per cent of carbonic acid, the amount thus liberated shows that the soil contains merely seven and a half per cent of lime; and such a soil, if rich in vegetable and mineral matter, is regarded as the first quality wheat-land. Now, to ascertain whether iron exists in the soil, dip a piece of oak bark into the tumbler, and it will be colored red if there is iron in the earth. To determine the quantity, pour off the acid carefully and put into it the prussiate of potash until it no longer forms a blue precipitate; let it settle, then drain it off, and beat the deposit which is oxyd of iron, to redness, and let it cool and weigh it. To ascertain the quantity of gypsum or plaster, put 100 grains of the dried earth into a crucible with one third the quantity of pulverized charcoal. Keep it in a red heat for half an hour more, filter it, and let it stand in an open glass dish for three or four days, and a white precipitate will be formed, which is plaster. Dry and weigh it to find the amount. These rules of analysis might be extended to the reduction of soils to their simple elements; but as we proceed, the process becomes more and more intricate, and the results less useful to the farmer. What has already been said, will enable the farmer to form a general idea of the nature of the soil and its adaptedness to procure crops. As I am not able to say all I wish in relation to deep ploughing and stirring the ground in dry weather, and the use of certain manures, I shall reserve my remarks for a future article on these subjects.

CULTIVATION OF COTTON IN ALGERIA.

The *Moniteur* publishes a long report from the French Minister of War to the Emperor, on the cultivation of cotton in Algeria. It begins by saying that his Majesty, with the view of encouraging that cultivation, had determined, by decrees of the 16th October, 1853, to give from his privy purse 200,000f. a year, for five years, to the planter who might produce the largest and best crop of cotton. It then states that this measure has already produced excellent results, inasmuch as in the course of last year, notwithstanding the unfavorable state of the weather, "the plantation cotton plants had assumed a large development," and that "Europeans and natives zealously rivalled each other in its cultivation." The Minister proceeds to give a report from the jury charged to examine the specimens of cotton sent to compete for the prize. After stating that the Arabs in the time of the Turks had cultivated cotton on a very small scale on the Tell, and still continue to do so in the neighborhood of the Collo, and after discussing at some length the different modes of cultivation—this report says, that in 1853 the cotton plantation covered about 530 hectares (the hectare is 2½ acres) and that in 1854 they extended to 1720 hectares, exclusive of some made by the natives at Biskoa. In this total of 1720, the province of Algeria is down for 653 hectares, that of Oran 802, and that of Constantina for 265. Eleven planters had presented themselves as competitors for the Emperor's prize, the extent of their plantations being rather more than 316 hectares. M. Masquelier, Jr., colonist of Saint Denis du Zig, in the province of Oran, and Si-ali-ben-Mohammed, caid of the circle of Guelma, were considered the best *ex æquo*. In consequence, the jury proposed that the prize should be divided equally between MM. Masquelier and Si-Ali, and that in addition each shall receive a gold medal. The Minister recommends his Majesty to sanction this award, and the *Moniteur* announces that the Emperor has done so.

We are informed that by order of the French Minister of War, 124 bales of cotton from Algeria, the produce of 1854, were sold publicly at Havre on the 12th of February, by Messrs Masquelier & Co. These cottons, gathered in the provinces of Algiers, Oran, and Constantine, consist of 77 bales of long staple and 47 bales of short staple.

The information forwarded to the French administration concerning these cottons (says the *Moniteur*) represents them as excellent in working quality, and beautiful to the sight. There is therefore no doubt of their being bought up by our cotton-spinners, who already gave such a welcome to the Algerine cottons of the last growth, with a view of showing their various uses in the manufactures at the Universal Exhibition.

To help this useful manifestation, the War Department has taken measures for reserving a suitable place in the Algerine compartment of the Universal Exhibition for every article manufactured with Algerine cotton which our manufacturers may be willing to place at its disposal for this purpose.

ECONOMIC CULTIVATION.

We have repeatedly seated ourself with the intent of writing upon the best mode of cultivating the various crops, and almost as often have we actually had our attention turned to and written upon some other topic. The reason is this: No one, except the favored few who have all the means at command needful in carrying out their plans of farm operations, can do half as well as they know how to do. Their land is poor, and they have not the means of enriching it. Labor is dear, at least when measured by their means, and they can not afford to hire it. Tell a man that a purse full of gold is only an inch beyond his utmost reach, and you do him no good but to excite feelings of discontent and envy, and even lead him to forego certain improvements which are within his reach, because they pay so little compared with what he is really anxious but unable to do. Poverty is a terrible burden, and nowhere is it felt more than among intelligent farmers.

Notwithstanding these difficulties, we would now urge this class of farmers, first, to expend their labor and their fertilizers upon a much smaller quantity of land than is usually done. Instead of planting five acres of corn, plant two, or one even; and plough and cultivate this small field to the entire neglect, if need be, of other acres. If those lie fallow, it will be useful to the soil, and at least no money will be wasted on them.

We say to such farmers, in the second place, you can do more than you have done in the preparation of various composts. There are very few farmers who can not double and treble the quantity and value of those necessary means of restoring vigor to worn-out and barren soils. By diminishing the extent of surface under cultivation, and by proper industry in preparing composts, there is scarcely a farm in the country that can not be made to produce its sixty, and seventy, and eighty bushels of corn to the acre. And even though one acre only is brought up to this desirable condition, a series of years will suffice to bring the whole farm to a high state of cultivation. If only small fields are made thus productive, the hopes and courage of the farmer will be thereby excited, and he will stand up manfully among men, and tell of his success as well as they.

We would NOT advise farmers of *limited means* to buy guano nor phosphates at any thing like their present prices. Pay your poorer neighbor his six or eight shillings a day (if you can not *exchange* work with him) to help you collect leaves from the forest, mud from the meadow, carting the latter only after it is tolerably dry, peat or marl from the bog; and if you can buy barn-yard manures, mix them with turfs, sods, roots, weeds, dirty straw, spoilt hay, chips that are unfit to burn; and if you are conveniently situated for it, get sea-weeds from the sea-shore, oyster-shells, old bones, horns, etc., etc. Dead animals are of great value. The offal from a slaughter-house, worthless scraps of hides, BONES, etc., etc., should be used only with large quantities of common soil, or of some other solvent. Not one in a hundred turns to the best account the contents of privies, hog-pens, soap-suds, and other kinds of waste.

Pardon us for asking why will you tax yourselves so severely by neglecting any of these modes of improving your lands? It may be only such neglect that keeps you in poverty; and though you enter upon the work with many painful doubts in relation to the result, we will assure you against loss from any such operations, if conducted with tolerable discretion.

Now is the time to commence this system of operation for the next year. On every leisure day, let the time be occupied in these preparatory labors. Every hour thus spent is worth something, and will tend to fill your purse at the time of harvest.

Almost all farmers sadly neglect their barn-yard manures. Were these properly cared for, their value, as a whole, would be more than doubled.

Having thus suggested the means by which manures may be provided, the next inquiry is, how and where shall they be used? Perhaps we are unable to give the information that many would desire, for reasons suggested in the last number. Perhaps you have an enclosure that for many years produced very large crops, and you just looked on and watched your opportunity to take from it the most you could get, returning nothing to it. It may be that it is so situated that it is almost able to take care of itself, like much of the interval on the Connecticut, which is annually enriched by being overflowed. If this is so, we should labor to hasten this process of improvement, and should do all in our power to get this soil back into the condition of a fertile field. When this is accomplished, take the next promising lot, leaving the more desperate cases to the last. When you plough your clayey grounds, fill in, without stint, a sandy compost. If the field is sandy, plough in a clay compost. This need not be a costly job, but generally is practicable for the poorest farmer. If you have a boggy meadow, a thorough ditching will be a part of the process necessary in reclaiming it, while the material thus thrown out is exactly what some other soil most needs. Compensations are not found only in the structures of animals, but they occur in almost every farm the world over.

RECEIPT FOR MAKING LIQUID OPODELDOC.—Take two quarts of proof whiskey, or other proof spirits, warm it over coals, being careful to prevent a *blaze*. Dissolve in it a pint of soap; when cold, put it in a bottle and one ounce of camphor. It is then ready for use. This is an excellent remedy for sprains or bruises, and should be kept by every owner of horses.—*Tippecanoe Farmer.*

CORN—ITS CULTURE, VARIETIES, AND PROPERTIES.

DIFFERENT varieties are to be preferred for different uses, and under different circumstances. That best suited for the table will not be the best for general cultivation, nor is that which makes the best bread the most efficient in fattening animals. The principal varieties cultivated in the United States are given in the N. Y. State Agricultural Society's Report for 1853, from which we make the following abstract.

THE YELLOW VARIETIES.

1. Golden Sioux or Northern Flint corn, derived from the Sioux Indians in Canada; 130 bushels have been raised to the acre.

2. King Philip or Eight-Rowed Yellow corn, named after the celebrated chief of the Wampanoags. A hardy plant, grows about 9 feet high, stalks small, ears 10 to 14 inches in length.

3. Canada corn or Eighteen-Rowed Yellow, smaller, earlier, and more solid than the preceding, contains more oil than any other variety, except the Rice corn and the Pop corn; is highly valuable for fattening, and is grown in many gardens for early boiling or roasting.

4. Dutton corn; first brought into notice in 1818, by Mr. Salmon Dutton, of Vermont; ears from 8 to 12 inches long, 12 to 18 rows, large cob; yields, with good culture, from 100 to 120 bushels per acre.

5. Southern Big Yellow Corn. The cob is thick and long, grains much wider than deep, and the rows unite with each other; their sides fall off almost to a point. The grains contain less oil and more starch than the northern flint corn, comes to maturity late, yields abundantly; much used for fattening.

6. Southern Small Yellow Corn. Ears more slender, and shorter than the preceding; grains smaller; less productive, but ripens earlier; abounds in oil.

WHITE CORN.

1. Rhode-Island White Flint Corn. Grains about the size and shape of the Tuscarora, abounds in a transparent, colorless oil, which may be easily seen through their clear, pellucid hulls. The farinaceous parts of the grain are white. The flour or meal is more substantial and less liable to ferment and become sour.

2. Southern Little White Flint Corn. The kernels are smaller than the preceding, and resemble them in shape, but are more firm and solid; contain more oil, cob smaller in proportion to the size of the ears, but the yield is less abundant.

3. Dutton White Flint Corn. This does not differ materially from the Yellow Dutton, except in color.

4. Early Canadian White Flint Corn. Cultivated principally for boiling and roasting when green.

5. Tuscarora Corn. Obtained from the Tuscarora Indians in the State of New-York. Ears contain from twelve to sixteen rows, grains nearly as deep as broad, of a dead whitish color on the extreme end, composed entirely within of pure white dextrine and starch, except the germs. It contains nei-

ther gluten nor oil. It is softer and better food for horses than the flinty kinds, and is excellent for boiling when green.

6. White Flint Corn. Ears contain twelve rows, of rather white, roundish, thick grains, which are filled with a snowy white flour, composed chiefly of starch, with neither gluten nor oil. It is extensively mixed with buckwheat, particularly in New-Jersey. Its properties resemble the preceding variety.

7. Virginia White Gourd-Seed Corn. Ears not very long, contain from twenty-four to thirty-six rows of very long and very narrow grains, so soft and open in texture that they will not bear transportation by sea, without being kiln-dried. Grains at the extreme end are almost flat, and grow so closely together from the cob to the surface that they produce a greater yield than any other variety in proportion to the size of the ears. They contain more starch, and less gluten and oil than those of the flint kinds, and from their softness are better feed for horses. When crossed with other grains, a small indention is seen in the ends of the grains when perfectly dry. It matures late.

8. Early sweet corn. One kind of this corn has a red cob, and another kind a white cob. Ears are short, usually contain eight rows: grains, when mature, are of a light color, and become shrivelled. It contains a large proportion of the phosphates, considerable sugar and gum, and but little starch. It is extensively cultivated for culinary purposes. The Shakers prepare it by boiling and scalding when green, separating it from the cob, and kiln-drying for winter use. It is also preserved in cans hermetically sealed.

9. Rice Corn. A small variety, with small conical ears, the grains terminating in sharp points, which give it the appearance of a bur. It contains more oil, and less starch than any other kinds. Is excellent for poultry, from its oily nature.

10. Pearl Corn or Pop Corn. Ears small, grains round, of various shades of color; contains more oil and less starch than any other variety. It forms an excellent dish when hulled and boiled.

11. Chinese Tree Corn. This was introduced by Grant Thorburn, "twelve or fifteen years ago," a kernel being found in a chest of tea. It is a pure white variety, ear about ten inches long, ten rows, grains very closely set, long and wedge form, well filled to the end of the cob, some of the grains slightly indented. The ears grow on the end of the branches. It is said to yield one fourth or one third more than the common varieties. It is better flavored when ground than other white corn, and is excellent for hominy, samp, etc. Generally two ears on a stalk, and often three.

The varieties of corn are very numerous, though but few of them are extensively cultivated in this section of country.

Sweet corn contains the greatest amount of the phosphates, and of course requires more of these elements in the soil. It, in fact, consumes nearly double the quantity consumed by some other varieties. It also contains more sugar and more gum than the yellow corn, though it has only a small quantity of starch.

Rice corn contains but little starch, while it yields the greatest quantity of oil.

Southern corn contains more starch than the northern.

Pop corn contains but little starch.

According to Prof. Salisbury, Ohio dent corn contains the greatest quantity of sugar and starch, and small 8-rowed corn, of gluten, and also of oil, and of albumen. Buell's Dutton corn contains the greatest proportion of water. The same learned Professor found in the variety called Turkey wheat 5.32 per cent of oil.

According to Gould, if Square corn is worth fifty cents a bushel for fattening properties, Flint corn should be estimated at 58 cents. The Tuscarora corn contains but very little oil, an important element for producing fat, but of little worth in making bread. This variety is valuable in the manufacture of starch.

Gluten is essential in the production of muscle, and hence, for working animals, the Yellow Northern corn is preferable to the Southern, which abounds more in starch.

Of twenty-seven varieties examined by Prof. Salisbury, the Rhode-Island Sweet corn was found to be richest in albumen and oil, and most deficient in starch.

Prof. Salisbury found the White Flint corn to consist as follows:

Silica,	9.50	Potash,	23.92
Alkaline and earthy phosphates,	35.5	Soda,	22.59
		Chlorine,	0.405
Lime,	0.16	Sulphuric acid,	4.385
Magnesia,	2.41	Organic matter,	0.367

Prof. Shepherd gives the analysis of Southern corn as follows:

Silica,	38.45	Carbonate of lime,	2.50
Potash,	19.51	" magnesia,	2.16
Phosphate of lime,	17.17	Sulphate of lime and magnesia,	0.79
" magnesia,	13.83	Silica mechanically formed,	1.70
" potash,	2.24	Alumina and loss,	1.65

In making mush, yellow corn absorbs water more freely than the white, the difference being about one in seven. The yellow meal gives less bran when sifted, than does the white, by about one twentieth.

The yellow is harder, drier, keeps more easily, and weighs more per bushel than the white, and produces a greater quantity by weight to the acre.

Sixteen gallons of oil are extracted from one hundred bushels of corn. By this process it loses in fattening capability, but, when used in bread, is more easily digested.

Northern corn grows well at the South, but Southern corn will not generally ripen well at the North. This is in accordance with the general rule of vegetation. Trees for ornament or for fruit may be profitably moved southwardly, but seldom flourish if carried towards the north.

Corn should be planted at a depth of about one inch. An experiment is described as having been made in Connecticut, in which the corn was covered at a depth of three inches. It came up and grew well at first, but soon ceased to grow for a while. It was discovered that new roots had been formed near the surface, and all below these had perished. The more shallow the covering the better, provided the grain is not thereby so exposed to the heat of the sun as to dry and harden, when it ought to swell and soften as a pre-requisite to germination. It will not vegetate at a higher temperature than 110° Fahrenheit, nor below 55°.

The soil should be deep and mellow. It may be sown or planted in connection with ashes, plaster, or prepared bones. It may be sown in drills or planted in hills. If intended for green fodder, drills are most expedient. If in hills, allow four stalks to each. If in drills, they may be single, double, or treble. If the first, they should be 3½ feet apart; if double or treble, plant so as to form lines diagonally as well as longitudinally. Thus:

. . . .
. . . or thus: . . . . . .
. . . .

the rows being 6 inches apart, the plants 9 inches, and the centre of the drills 3 feet.

If corn is planted in hills by securing regular rows in different directions, the cultivator may be run through in different directions, and hand labor thus be saved. If planted by hand, the rows may be marked off by a *marker* or a very coarse hay-rake, having the teeth at the distance required for the rows.

If the stalks are to be taken into the account, it is found that the stalks of the small Northern corn contain more desirable and palatable food than the large Southern. On analysis, they render a larger proportion of sugar.

In the fattening qualities of the various species, there is also a difference, although experiments on this point are not so numerous as to be received as authoritative. It is unquestionably true, however, that corn should be cooked before it is given to animals. From some experiments it appears that three bushels of meal cooked are equal to four and a half of hard corn. This gives a result *in value* as follows: If fed raw, a bushel of corn, when made into pork, is worth only 38½ cents; if cooked, it is worth 55 cents. But we have often expressed our belief that all such experiments should be received with great caution. No one experiment of this sort can be relied upon for general application. Hundreds ought to be made and compared before any great confidence can be placed upon them.

Corn is rich in phosphates, as already suggested, and hence it is that great caution is necessary in feeding it to animals, and especially to horses. These salts are chiefly appropriated by the bones and a too free use of them produces disease in and about the joints.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE OSAGE ORANGE.

MR. EDITOR: Almost every thing that pertains to the interest of the farming community is spoken of in your journal, such as the best mode of obtaining the largest and most profitable crops, the best kinds of cattle, swine, horses, and poultry, etc., the best kinds of ploughs, harrows, cultivators, and finally, all kinds of farming tools, the draining of swamp lands, etc. If I mistake not, your correspondents have never said a word about hedging with the osage orange or any other mode of fencing without rails or boards. The great and general study of the prairie farmer is to contrive how to fence his land upon the large prairies. If some of your correspondents who have tried the osage, would give their mode of culture, and circulate it through your journal, it would be a great pleasure to many of us here in this prairie country.

L. S. SPENCER.

Lynn, Warren Co., Iowa.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

A GIRDLED TREE STILL GROWING.

MR. EDITOR: Will you, or some of your correspondents, give me an explanation of the following?

In my orchard is an apple-tree, the body of which is about three inches in diameter. Two years ago I took off most of the top, and inserted scions of other fruit. Last spring, 1854, I found the mice had girdled the stem, entirely removing the bark for at least five inches. I placed earth about the exposed portion, and left it to die. I find now, May, 1855, that the tree seems to be vigorous, that it made the usual quantity of wood last season, and that it promises to bear fruit this. The wood from which the bark was removed is dry, and apparently dead. No roots have shot out from the bark above.

Now the query is, How does the tree obtain nourishment? The sap does not pass up through the bark, nor through that portion of the wood called the sap, for it is dry and apparently lifeless. Can it pass through the heart of the stem? If not, it must derive its nourishment solely from the atmosphere, through the leaves. That it will *continue* to live, I do not expect; but how has it lived and thrived thus far, that is the question?

Now, that I may give as much as I receive, suffer a word of exhortation about young trees. Now is the time especially to look after and care for your fruit-trees. The caterpillars should be stirred up with a long pole, or some other instrument of torture. I go for persecuting the "varmints." I think intolerance may better be expended upon these pests than upon foreigners of our own species.

He who has but few trees can easily keep them clean. He who has many can still better afford it.

Young trees should be washed at least twice during the season. First, let the scraper pass around with his saw and pruning-knife, removing all moss, dead bark, suckers, and limbs which interlace or injure others. Then let a wash of soft soap and water, about one pint to a pailful, be applied with a sponge, and the work is done. A few dry ashes about the roots will annoy the insects, and promote the growth of the tree. R. B. H.

MEXICAN GUANO.

THE opinions of Dr. Jackson and Dr. Hayes, of Massachusetts, given below in respect to the subject of our title, coïncides exactly with what we have many times stated to friends who have made personal inquiry of us in relation to it. The extract is taken from a Boston exchange:

"Dr. A. A. Hayes, State Assayer, said the resources for supplying the waste incident to culture, are not abundant. We have not the seasonable rains of England, and can not draw our rules from the method. Lands do not run out. They have not *time* to recuperate the soil by means of decomposing rocks. The time is too short, unless we make up the supply by artificial means.

There is a new variety of guano found on the Bird Islands, on the Atlantic side of South America. The proportion of phosphate of lime in this is very large, 60 per cent of the whole.

He had no confidence in the ammoniacal contents of Peruvian guano. This guano from the Atlantic side furnishes a much larger quantity of phosphate than the Peruvian.

No manure can compare with barn-yard manure, weight for weight, in equal states of dryness.

This guano, used in compost, offers a resource long needed. It may be used by sowing it upon the snow and allowing it to find its place.

Dr. C. T. Jackson, of Boston, said he had some practical knowledge of this new kind of guano. It is rich in phosphates. Some specimens contain ammonia.

The action of manures is quickened by rendering them soluble; but if they are made soluble too suddenly they are washed away.

Nature disengages potash slowly from feldspar. We must learn a lesson from this. Leached ashes are about as good as guano. Ashes is what we know as once the saline matter of plants.

Leached ashes operate almost as favorably as unleached ashes. There is a large proportion of phosphates and silicates in them. He was surprised to see fish neglected and thrown away in so many places. Dr. Hare had a method of dipping fish into a mixture of sulphuric acid and water. There was no smell from them, and when dry he would grind them up, and make a guano, without depending on the birds.

He would put on guano both ways; would plough in a part and harrow in a part. Barn-yard manure retains moisture. If the season is moist, the use of guano is of more avail. This may account for some of the discrepancy in the reports about the use of guano.

He would join his friend, Dr. Hayes, in recommending this Mexican guano to be put in compost."

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

SAFFRON.

This article comes to us from the East. It is highly prized in Europe. I remember that, in my youth, saffron was very dear in Poland, a pound costing ninety francs, or sixteen dollars. But industrious France engaged in this trade, and commenced the cultivation of this plant: and throughout the environs of Pithivier, in the department of Loirret, whence it was sent into Poland and was sold for that of the East, although it had less strength, on account of the cheapness of the price for which it was sold.

In 1834, in France, I examined the mode in which this was cultivated, and here note the results which I then obtained.

Saffron is that portion of the corolla termed the ray, and is cultivated by transplanting the tuber. It requires an argillacious, marly soil, and should be cultivated without being manured. The tubers are planted at a distance of ten fingers, and three fingers in depth. They produce a stem which after two months produces a flower, and of the ray petals of this flower the saffron consists. The petals are plucked and are collected in a sieve, and then dried in the shade, as the rays of the sun dissipate their strength. After the saffron is gathered, the stems are dug up without breaking them. The vines are then cleaned and preserved for the next year. They should be kept in a dry and warm place where there is no odor.

After the saffron is gathered, the flower and stems are cut off near the ground, and the plant is left to vegetate until the next year, without any other care than that of keeping it free from weeds; and it will produce a crop in the second year, and even in the third, as good as in the first.

Saffron should be planted in April, and the harvesting is in September. The land used for this plant, after three years, should be cultivated with other crops for six years.

The petals of the flower should be dried by being spread upon a table covered with a white cloth.

The saffron of France was sold in 1828 at forty francs, or eight dollars, a pound. In 1850, when the product was very much increased, it was not worth more than twenty-five francs, or five dollars, a pound. It is inferior to that from the East, but has the same properties.

I have seen and examined the saffron produced in the State of New-York. It is deficient in sweetness and in odor, compared with the French. This difference is probably the result of a different kind of cultivation.

SANIEWSKI FELIX.

[The above was translated from the French manuscript by the editor.]

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE SEASON CROPS, PRICE OF PRODUCE, ETC.

MESSRS. EDITORS: The winter commenced with a heavy snow-storm on the 3d of December, which fell about two feet deep, and made beautiful sleighing till the last days of the month. From about the 26th of December till the 12th of January, the ground was generally bare, when the snow again fell. February was the coldest, stormiest February since my memory. From my record I find, Feb. 6th, mercury down 22 degrees below zero, and the snow about two feet deep. March was an uncommonly cold, stormy month, and the first week in April nearly as cold as mid-winter. The weather moderated toward the middle, with uncommon hard showers. May came cold and wet, and remained so till about the 18th, when it became dry, and seriously dry, till the last of the month, with a frost about every other night, but not hard enough to do much damage. June came in cold, with a fine rain on the 2d and 3d; and now, June the 6th, there is an appearance of a great storm, with weather rather cold for this season.

From the great amount of sleighing, the farmers and lumbermen had a fine chance to draw their produce to market, and to get in a larger stock of logs than any year for ten years previous. Every mill is crowded. The price of lumber down the Susquehanna is lower than last year, namely, $12 per thousand, or $2 lower than last year. Hemlock lumber from $3 to $4 lower, namely, from $5 to $6 per thousand. Shingles, good, $18 per thousand; and square timber worth not enough to pay for running, although more run than ever before in one year.

Of the crops, wheat and rye are generally fine, so far. Rye is very promising. Of winter wheat, there was but little sown, in consequence of the ravages of the wheat-fly last year. A few fields of oats and barley begin to appear, and look well; but a majority of oats is only now up, in consequence of the cold, dry weather last month. A large amount of oats sown. Corn is generally up, with the exception of a few fields on the high hills; and, considering the season, it appears well, and an unusually large quantity is planted. In consequence of the very high price of grain for the last year, there has been an uncommon amount of grain put in the ground. A few meadows and pastures are good, but many are injured by the late dry, cold weather, and a large amount of grass-seed did not come up last year. We find it is useless to sow clover, except in very dry ground, on the account of its freezing out in winter.

I have reason to believe that cattle and produce are dearer and scarcer than before in twelve years. Wheat at $2.50, but no more for sale; rye, $1.25; corn, from $1.25 to $1.50; oats, from 65 to 70 cts; potatoes, from 75 to 87 cts—have been $1, and now rising again; hay, from $12 to $20 per ton; butter, from 18 to 22 cts. per pound; common working oxen, per yoke, from $125 to $150, and common horses $150 per head; cows, from $25 to $40 per head. R. HOWELL.

Nichols, Tioga Co., N. Y., June 6th, 1855.

PAINT FOR HOUSES.

WE recently published a few directions on this subject, which seemed to us important. One who seems to be versed in the subject, as a practical painter, makes other suggestions, in the *Indiana Farmer*, which we are disposed to indorse. He says: "It is not easy matter for some painters who pretend to considerable experience in their art, to paint the interior of a house in a proper manner. White lead and oil, mixed as for outside use, will dry, it is true, and preserve the wood-work; but before three months, the paint will become almost yellow, and have exactly the appearance of being smoked. This is not the case with external painting, because the light and air bleach the paint precisely as it does linen or cotton cloth when exposed in a similar way.

To paint white in the interior of a house, very little linseed oil should be used, except what the white lead was at first ground in. Spirits of turpentine should be the principal fluid used to mix the paint, Japan being added in small quantity as a dryer. The first coat, or "priming," should be mixed with linseed oil alone, being well rubbed down when dry, with sand paper. Two coats should afterwards be put on with the turpentine alone, the last coat being rather the thickest.

To make a very handsome white finish, for parlors and other nice rooms, after putting the paint on very carefully, Gum Demar varnish should be put on over all. This makes a beautiful gloss, and keeps the paint of a brilliant white all the time. Should the paint become dirty, it can be washed off as easily as a pane of glass, using nothing but warm water, as strong soap destroys the varnish. Every house-builder desiring a permanent, brilliant white finish to his rooms, should use this varnish. It answers a very good purpose to mix it in with the last coat of paint, making a much handsomer finish than when not used at all, but much the best way is to give the entire work a coat of the varnish after the painting is finished and partially dry.

Kitchens should be painted a light slate or lead color, made by mixing a small quantity of lampblack with the white lead; particularly the doors, mantel-pieces, and wash-boards. The floors of porches and kitchens may be painted with the same material, or they will look pleasant and cheerful if yellow ochre is used, ground up with linseed oil and Japan.

In putting on green paint, slate color should first be used as a priming, two coats of the green being added afterwards. Paris green makes the brightest color, and must be carefully ground in oil, adding Japan as a dryer. Chrome green makes the deepest and must permanent color, and white lead is used to temper the paint to the proper hue.—*Ohio Farmer and Horticulturist.*

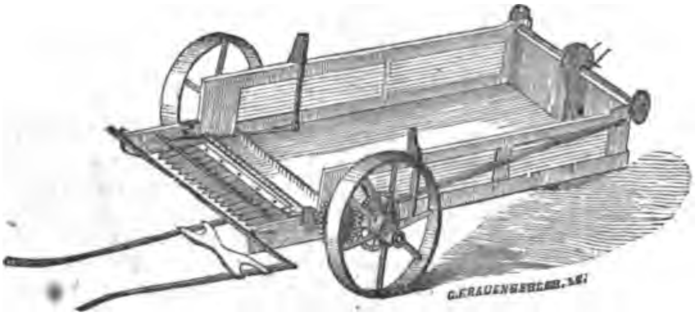
MODE OF RAISING CALVES.

We doubt very much whether any artificial process can be as successful as that designed by the Author of nature. Our wisdom is not wise enough, in our judgment, to criticise Omniscience. But sometimes, for specific purposes, the second-best mode is then and there desirable. We have made this suggestion elsewhere, in reference to the treatment of trees and other vegetable growths, and would apply it here to the subject of our title. Still we can conceive that in certain cases the advice of a correspondent of the *Country Gentleman* may be worthy of attention. He says:

"Among all the various ways for raising calves, described by your correspondents, there seems to be none adapted to the wants of the cheese dairy-man. The farmer keeping thirty-two cows, should be able to raise some half-dozen calves annually from the best milkers in his herd, to supply the place of those failing from old age and casualities of various kinds, and to improve his dairy stock at a cost somewhere near the value of the animal when matured. The idea of raising stock to supply our wants by feeding calves for three or four months on new milk, either from the pail or at the teat, is to say the least, *simply absurd.* One gallon of milk makes a pound of cheese worth to the producer ten cents, or the same value if made into butter. A calf requires two gallons per day, equal to twenty cents. Three weeks' feed at this rate amounts to as much as the calf may be expected to bring at four months age. There is then a loss of twenty cents per day for the remaining two or three months that they are fed, amounting to a loss of at least eight dollars each the first season. In a butter dairy the skim or sour milk may be fed perhaps. Unless there is some cheaper method to be practised, *we* can never render our *city beef-eaters* any relief.

My method is as follows, and calves may and have been raised by it that were very far above the average, even of good lots, at four months. Take the calf from the cow at three days old, and learn it to drink; it will learn far easier then, than at any time after; feed new milk twice a day for two weeks, and once a day one week longer. At two weeks begin feeding once a day, and in a week more twice a day, *porridge,* made of three to four quarts of sweet whey and one pint of meal, of a mixture in nearly equal parts of oats, buckwheat, corn, and rye. Cook as if for one of the human family. The cost of one quart of this meal, (daily mess for each) may be three cents, which is all the value they consume, the whey being of too little value to make any account of. Give this feed four months, and continue the whey a month longer, always with a good bite of grass, tender and sweet, and no fears need be entertained for the result. The first winter give warm shelter, good hay, and one pint of oats each, daily; and my word for it, you will never be ashamed to have a neighbor call and look at your young stock."

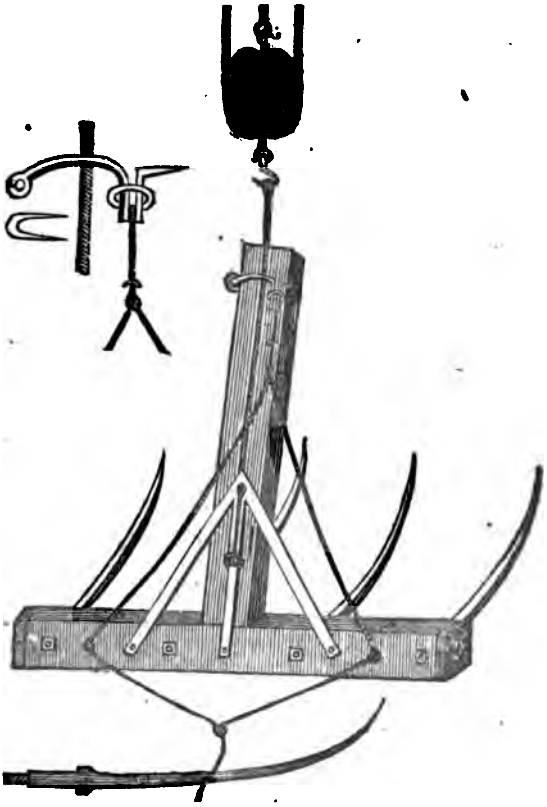
GRAIN AND GRASS SEED HEADER AND HARVESTER.


G.FRAUENBERGER, SC.

We have seen a working model of this useful machine, invented by Mr. T. S. Steadman, of Holley, N. Y., in the possession of our neighbor of the *Genesee Farmer*, and were exceedingly pleased with its operation. The engraving well represents its appearance.

"It is drawn by one horse, which walks outside of the part of the field intended to be harvested. Turning continually to the right, it cuts equally as well when turning a corner as when going straight ahead. The seed heads are gathered by the comb, cut off by the revolving knives, and by a self-raking apparatus attached, thrown to the rear end of the box. By detaching the intermediate gearing wheel, it is immediately converted into a three-wheeled wagon and can be driven wherever wished. By pressing down one or both of the levers shown on the rear end of the box, one or both sides of the comb and cutter may be lowered or elevated at pleasure. The peculiarity of the machine is that it cuts and saves only the heads of the grain or seed, and by an extra pair of wheels, it can be applied to the gathering and harvesting of any kind of grain or grass seed. It will cut from eight to twelve acres per day with ease. All the bolts in the machine are in sight with but one exception, and any common blacksmith or mechanic can repair it, if by accident it should get out of order."

IMPROVED HAY FORK.



From the same source as the preceding, we have obtained an engraving of this efficient implement, the description being taken from the *American Farmer*. In that journal Mr. Edward Stabler, a correspondent, says:

"We have had it in use several years, and, as now improved in the mode of discharging the hay, I consider it not only a labor-saving, but also a time-saving machine.

"As originally made, (for the plan of which I was indebted to a friend in New-Jersey,) the rope was fastened to the upper end of the handle; and although the hay was raised equally well, it was found tedious and laborious to work the trip cord; and very difficult, if not impracticable, to discharge the hay when and where desired on the mow. In this way its operation was not at all satisfactory.

"By attaching the rope to the handle, six or eight inches from the head piece, instead of the upper end, and passing it along the handle, under the trigger, at this point a slight jerk of the trip cord held by the man on the wagon, instantly changes the fulcrum—of course the position of the fork—and the hay falls. The trip cord also serves to pull back the fork to the wagon.

"I am thus particular in describing both fixtures, as many inquiries have been made, and perhaps by some who use the original plan. A mere trifle in cost will add the improvement, and, as I think, nearly double its value.

"The 'tackle' is attached to the peak of the rafters, and directly over the centre of the hay mow; the fall rope passes under and near the rafter, to a guide pulley fastened to the upper end of the door post, down by the side of the post to within a foot of the floor, and through another guide pulley; to this end of the rope is attached a swingle-tree, or hook, as may be most convenient in working a horse or yoke of oxen.

"If properly managed, the fork will readily raise from four to six hundred weight of hay at a time (while a hand fork is moving the tenth part of it, perhaps;) and when high enough the horse stops. A hand or two on the mow with forks, sway it backwards and forwards, to give an impulse in the desired direction, when the trip cord, by the strength of a finger, throws it instantly in a compact layer, as taken from the wagon. Considerably more hay can thus be mowed in a given space, with comparatively little manual labor, fewer hands, and in a third or fourth of the time.

Very respectfully, Edward Stabler.

"Head of tough scantling, 3½ by 4 inches, 3 feet 3 inches long, with bands at ends.

"Handle 3½ by 4 inches, 3 feet long, inserted at right angles, and braced with 3 iron plates ¼ by 1½ inches.

"Steel prongs ⅞ inches square at shoulder, set angularly in the head, and tapered to the point, 22 inches long clear of head, with screws and nuts at back end.

"As the handle does not raise vertically, the prongs should curve upwards considerably, so as to resist the hay.

"The trigger is very simple—an iron pin ½ inch diameter, bent at right angles, one end driven into the handle, projecting an inch, and ranging down the handle about 2½ inches. A curved iron strap with an eye, and confined at the opposite side by a small staple, passes over the rope, and the other end bent parallel with the pin; a small ring attached to the trip cord slips over both; the tension of the rope while hoisting, effectually fastens it, until the cord pulls off the ring."

CHEAP COMPOST FOR CORN.

Having received the credit for two years past, of having as good corn as any in our neighborhood, and attributing our success mainly to the use of a single handful of cheap compost, dropped in each hill before planting the corn, we give you a statement as to how we form it..

Supposing a load to contain twenty-five bushels, we take two loads of muck manure from our hog-yard, one load of wood-ashes, and three bushels plaster Paris. Work the parts thoroughly together with a hoe or shovel. Our corn-ground having received a coating of manure before being ploughed, the harrow follows the plough lengthwise of the furrows until the surface is well pulverized. We mark one way for the hills with the shallow furrow of the plough, and then draw a chain the other way, which shows the place for each hill. The compost gives the corn a good start, and the manure helps it out. We have also, for the last two or three years past, soaked our seed-corn in a strong solution of tobacco-water, and have not been troubled much with worms. Let it remain in the solution from twelve to twenty-four hours. —*Country Gentleman.*

TRAPPING GRUBS AND CUTWORMS.

The following novel method of getting rid of these occupants of a cornfield, was adopted by a correspondent of the Michigan Farmer:

He planted his corn on a clover sod plowed in in spring. While planting he found plenty of the small grubs. The corn was planted about the 20th of May, and as soon as it came up they commenced their mischief. Knowing no reliable or certain way of saving the corn, he concluded to *trap* them. For this purpose he took a round stick three or four feet long, and about two inches in diameter, and, making one end sharp, and taking two rows at a time, he made from two to four holes, four or five inches deep, in or close by every hill. After fixing several rows in this way, he waited to see the result. On examination, he found that almost every hole had one or more worms in it. In one hole he counted as many as six. He then went over the whole field in the same way, and the result was that hardly a hill of corn was destroyed after the holes were made, while his neighbor's corn just over the fence, which was on ground plowed very early, was more than half cut off with the worms. "It might be supposed," says C. Q., "that when the fellows fell into the traps, they would bore into the side and escape; but on watching them I found they would try to climb up the side, but the sides being smooth they always fell back again, when about twenty-four hours of sunshine and starvation would put an end to them. They usually commit their depredations in the night, and while crawling around to find the corn they tumble in." An additional recommendation of this method is, that the birds will not pull up the corn, when they find plenty of *grub* already provided for them.

FARINA.

The following account of the manufacture of Farina is from Warren's "Para on the Amazon." It should be remarked that the article so much in use in this country as an article of food, under the name of "Hecker's Farina," is not the Farina of South-America, but is manufactured from wheat:

"The vegetable (*Jatreph amanihot*) from which the farina is made, is, in its natural state, considered quite poisonous, and is entirely unfit for the purpose of nutrition. The means, therefore, by which its pernicious qualities are expelled, and the nutritious principle retained, must be always regarded as a most extraordinary and valuable discovery.

The plant is a native of Brazil, and was known to the natives on their first intercourse with white men. No other vegetable, not even wheat, possesses an equal degree of nutriment, and, together with bananas and wild meat, constitutes the principal item of the native Brazilian's bill of fare. The farina is made from the root, which is first rasped with a piece of indented wood, until it is reduced to pulpy consistence. The juice is then effectually expressed in the following singular manner: Large circular baskets of plaited rushes are filled with the raspings of the mandioca root, and then suspended from the branches of the trees. By means of a considerable weight of stones fastened beneath, the rushes are drawn tightly together, and most of the liquid squeezed out. After this, the pulpy substance is exposed on skins to the rays of the sun, for the purpose of evaporating all the remaining moisture.

The juice being at length entirely expressed, the pulp is placed on large earthenware pans, and stirred over a hot fire until it granulates; it is then put up in baskets for use."

COST OF RAISING WHEAT, CORN, ETC.

The next volume of the New-York Agricultural *Transactions* will contain a detailed farm account of Mr. William Johnson, near Geneva, from which we gather the following interesting items in regard to the cost of raising different crops the last season. His statement is published in the Journal of the State Society for the present month, and shows very creditably the order and method of Mr. J.'s agricultural operations.

The farm contains eight acres of tillable land divided into nine lots, numbered from one upwards, and accurate account kept with each. The soil is a dry loam, with a clay subsoil, pretty uniform throughout the farm. Each crop is charged with the interest on the value of the land producing it, and with all the labor and material used in its production. Of wheat six acres was sown, the whole expense was $122.40; the product was 126 bushels or 21 bushels per acre; this makes its cost per bushel a trifle over 97 cents. But deducting the value of the straw, estimated at $18, we make the cost of the wheat but 83 cents per bushel. It was sold at $1.81, leaving a fair margin for profit at either figures. But at the price of wheat for many years past the profit would have been little or nothing.

Eight acres of barley cost $102.20 and produced 284 bushels, or 35½ bushels per acre. It cost very nearly 37 cents, and sold for $1.00 per bushel. This produced a greater per cent of profit than the wheat, as we believe it generally has, for a series of years.

Ten acres of corn, on clover sod, cost $153.26. The product was 410 bushels of corn, and $60 worth of corn stalks. Mr. Johnson states the cost of raising the corn at 37½ cents per bushel, but if we deduct the value of the stalks from the whole expense, it makes the cost of the corn but 22¾ cents per bushel. We should be glad of some explanation from Mr. J. on this point, as the value of the stalks and straw may have been allowed to balance some part of the expenses not indicated.

Ten cows are kept upon the farm, yielding an average of 210 pounds of butter each. Mr. J. estimates the product of each cow worth about $54, and the cost of keeping $26.85. It cost 12½ cents per pound to make butter, on Elmwood farm, and we think it can not be sold for less anywhere with much profit. His pork, killed at 9½ months old, fed on milk and fattened with corn, costs 5 cents per pound. The balance over expenses on the whole farm, for last year was $953.42.

Mr. Johnson practises the following system of rotation. First, corn, to which is applied all the unfermented manure he can get. The next spring it is sown with barley at the rate of 2½ bushels of seed to the acre, then sown to wheat in the fall, with a top-dressing of fine manure, of about six loads to the acre. The following spring it is sown with eight quarts of clover-seed and four quarts of timothy, with one bushel of plaster per acre, when it is allowed to remain three years in grass. The usual product is 55 bushels of corn, 30 of barley, and from 20 to 30 of wheat, per acre. The manure is all kept under cover, and a regular system of underdraining is being carried out. —*Rural New-Yorker.*

NATURAL HISTORY OF THE LOCUST.

The following information concerning the habits of the seventeen-year locust, given by a writer in the *Boston Advertiser*, will be found interesting at the present time:

"The locust's favorite resort is that of a copse of young and rather thin oak wood, where the soil is rather soft and light. They are first discovered in the ground near the surface, in the form of a large white grub or worm, and a quarter of an inch in diameter. Where or in what mode they pass through the chrysalis state, and become fully invested with wings and other members, I do not know; but they are soon found in vast numbers, and in a full chorus of sonorous voices, among the branches of the small trees. They have a distinctly marked W found on the back. In this stage of their lives they do not seem to feed. On opening one, the body appears to be a mere hollow shell, without any feeding or digesting organs. They continue in this state, I believe, about six weeks or two months.

Shortly before their disappearance, many of the small twigs of the young oaks appear to be girdled and partially cut off, and hang suspended from the extremity of the branches. The leaves turn red as when touched by frost in autumn. On examination these twigs appear to be sawed about two thirds off and girdled, so that—the circulation of sap being cut off—it soon dies, and probably falls to the ground during the ensuing winter by the action of wind, rain and snow.

The general belief is that by a curious and remarkable instinct, the insect is led to deposit its eggs in some secure mode upon these small twigs, and then thus partially to sever them from the parent stock, so that by their fall the eggs shall be borne gently and safely to the ground, into whose bosom they are in some form received and cherished, to reäppear in the form of the full-grown locust, after the lapse of seventeen years. I am not aware that this fact of the deposit of eggs upon the falling twig has been verified by actual observation; it is one of the points which require careful examination."

PROGRESS OF CIVILIZATION.

In a lecture on what he has seen abroad, Wendell Phillips observes:

"In Italy, you will see a man breaking up his land with two cows, and the root of a tree for a plough, while he is dressed in skins with the hair on. In Rome, Vienna, and Dresden, if you hire a man to saw wood, he does not bring a horse along. He never had one, or his father before him. He puts one end of the saw against the ground, and the other on his breast, and, taking the wood in his hand, rubs against the saw. It is a solemn fact, that in Florence, a city filled with the triumph of art, there is not a single auger, and if a carpenter would bore a hole, he does it with a red hot poker! This results not from the want of industry, but of sagacity of thought. The people are by no means idle. They toil early and late, men, women, and children, with an industry that shames labor-saving Yankees. Thus he makes labor, that the poor must live. In Rome, charcoal is principally used for fuel, and you will see a string of twenty mules, bringing little sacks of it upon their backs, when one mule could draw all of it in a cart. But the charcoal vender never had a cart, and so he keeps his mules and feeds them. This is from no want of industry, but there is no competition.

A Yankee always looks haggard and nervous, as though he were chasing a dollar. With us, money is every thing; and when we go abroad, we are surprised to find that the dollar has ceased to be almighty. If a Yankee refuse to do a job for fifty cents, he will probably do it for a dollar, and will certainly do it for five. But one of the lazaroni of Naples, when he has earned two cents and eaten them, will work no more that day, if you offer him ever so large a sum. He has earned enough for that day, and wants no more. So there is no eagerness for making money, no motive for it, and every body moves slowly."

PRUNING TREES.

The best time for this is when the sap does not flow very freely. If the limbs are cut when the sap is abundant, it will often run down the stump of the limb and the trunk of the tree, producing an unseemly discoloration. If any amount happens to collect in some cavity, it ferments, and is converted into a noxious liquid which injures the substance of the wood. If the leaves are very abundant, they will secure such a flow of the sap into their own tissues, as will prevent any such action. Hence in midsummer trees can be pruned with impunity. But the spring is not a proper time for this work, unless at a period before the sap begins to circulate freely.

THE CULTURE OF STRAWBERRIES.

The New-York Horticultural Society, at a recent conversational meeting, arrived at the following conclusions in regard to the best method of cultivating strawberries:

"The best soil for the strawberry was stated to be a gravelly loam. The land should be well drained, and to every acre applied twenty bushels of unleached ashes, ten bushels of lime, and two or three pounds of salt. The ground should be well broken up, animal manures should be eschewed; leaf is the best, and this should be carefully spaded in. About the first of July is the best time to set out the plants. In doing this, pains should be taken to have them firmly rooted. The roots should be eighteen inches apart, and the plants a foot apart.

Sometimes it will be well to allow greater interval, in which case the interstices can be filled up from the growth of the runners. After setting out the plants, throw on a covering of tan bark an inch or an inch and a half in depth, then water them plentifully and the moisture will be retained a long time. After cold weather comes on, cover the strawberry-beds and the walks with clean straw, throwing over a little brush, or something to keep the straw in its place. In the Spring remove the straw and make use of some fertilizing agent to give the plants vigor, as sulphate of soda, sulphate of ammonia, or nitrate of potash. Keep the roots out, see that the plants are bountifully watered, and let nothing intervene to disturb or retard their growth till you gather the fruit. The beds should be made over as often as every three years."

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE CULTURE OF FRUIT.

MESSRS. EDITORS:—During the last four years I have examined the fruits in the markets of New-York, Brooklyn, and Williamsburgh, as well as the orchards of their environs, and I have perceived that all the fruits are inferior to those of Europe. This is not on account of the soil, but from neglect of cultivation, and from want of care in the management of fruit trees. It is only in Boston that I have seen in the market, good apples, good pears, and good peaches. I do not know where they grew, but I am satisfied that the State of New-York does not produce them. For the purpose of indicating the proper method of improving this branch of rural industry, I will examine successively the several products of this branch of labor so profitable to the farmer.

1. The Strawberry.

There is not to be found in the market any of this fruit except what is produced from the native growth, and without the labor of cultivation. The garden strawberry, though larger and of excellent flavor, is seldom cultivated. There is a peculiar quality to the strawberry which has a taste well pronounced that of the pineapple. This fruit is not produced without pains, but is juicy, refreshing, and delicious.

The town Fontaines des Roses, situated about three miles from Paris, furnishes this fruit to the inhabitants of the capital, and its proprietors are enriched by this kind of industry. They devote themselves exclusively to it, and the surrounding country for twelve miles square produces only this fruit, the value of which in Paris, to the dealers, is from four to six cents a pound. The wild strawberry does not grow in the forests, which are young, cultivated, and held by individual proprietors, and have the appearance of gardens. Nor does that fruit improve much by culture, though the taste becomes a little more delicate. But Poland not only cultivates extensively the garden strawberry, but produces this fruit in the forests so extensively that for one cent, in the market of the small cities, one may buy a gallon, and two persons can pick a barrel in a day.

The fruit is not only eaten with sugar, or with milk, or with sweet wine, but the juice is expressed, and is used to season ices in the summer, and gives them a most agreeable taste, as well as that of the pineapple, which resembles the flavor of this fruit.

The manner of propagating and cultivating the strawberry plant is as follows:

The soil is prepared beforehand, slightly manured, though it is necessary that the manure should be thoroughly beaten or broken up, and at the time of planting, should be perfectly free from weeds. The buds or new shoots which the old plant has put forth are cut off near the root, and are placed in regular lines, in the ground, either in autumn or in spring, at a distance of about six inches. Those planted in autumn will bear fruit in the next season, but those planted in the spring will not produce fruit till the following year. To preserve the strawberries in good condition, it is necessary to keep them entirely free from weeds. In the month of October, cut off the runners with the young buds, and repeat this operation in the spring.

To transport the young plants to America, it is necessary, as soon as they are dug up, to place them in boxes, and cover them with earth, and as soon as they arrive, to plant them in the ground already prepared for them. The experience of the writer proves the correctness of these directions, which are based upon that experience.

Finally, I would add, that the strawberry plant, being properly trimmed, should be carefully stirred with a weeding-hoe through the entire spring, and all the yellow and decaying leaves should be cut off.

2. The Gooseberry.

In America there are but few gooseberries, except those which grow spontaneously in the woods, and they are sour, small, and have but little juice; while in Europe they are cultivated with care, and they are very profitable to the producer. The ripe gooseberry is wholesome and refreshing. The syrup of gooseberries is beneficial in febrile diseases. The preserve serves to season the beef and cutlets of convalescents, and the gooseberry tart is good for children.

The gooseberry is white and red. The former is sweeter, and is used chiefly for eating. The latter serves also for syrups and for sweetmeats.

The wild American gooseberry is somewhat improved by cultivation. It must be taken from the forests, and transplanted in the fall into the garden, or on land properly prepared for it. The old and superfluous branches should be cut off. Every spring the earth should be removed around its roots, and which should be covered with manure. The young branches may be cut off and transplanted in suitable places. Thus cared for, it will reward the laborer with a plentiful crop. It grows well among vines, with which, in France, it is often cultivated.

I propose to indicate the manner of making the syrup and sweetmeats from gooseberries. When they are ripe and gathered, the juice should be expressed by pressure, and suffered to stand for twenty-four hours in a cool place, so as to prevent fermentation. It is then poured into a copper kettle. For every quart of juice add half a pound of sugar for the syrup, and a pound for sweetmeats. Place the mixture over a moderate fire; stir and skim it till it is clear. Pour the syrup into vessels to cool, and then bottle it. The sweetmeats should be put into china pots and cooled, and covered with white paper saturated with brandy, and then with prepared bladder.

To give the preserve a pleasant flavor and odor, some add a pound of whortle-berries to three pounds of gooseberries, and press out the mixed juice. The sweetmeats should be boiled a longer time than the syrup; they should be boiled and re-boiled until on cooling they are sufficiently thick to be cut with a knife. It is well to renew the paper over the preserves once in two or three months.

In France, sweetmeats are prepared for commerce with brown sugar and even with molasses; but they do not keep so well as those prepared otherwise, and I should always recommend refined sugar. A quart of syrup costs twenty cents; the preserve, with refined sugar one shilling a pound, and with molasses ten cents.

Confections of the gooseberry serve also for fine pastry, and the syrup for ices. I say nothing of the gooseberry of Manot, as it is of little value.

3. The Cherry.

The cherry-tree comes to us from the East, from Persia. The Crimea produces many fine varieties, and from this region it was introduced into Poland and the low countries of Germany, where it ornaments the public roads.

The cherries of the New-York market are of poor quality, without proper flavor, deficient in pulp and in juice, while the coat is thick with a hard skin, where they grow wild in the forests or fields, unless improved by very careful cultivation, judicious pruning, and scraping the bark. Under such treatment of the tree, the fruit will improve.

A pound of bad cherries in New-York costs ten cents; while in Germany, for that sum perhaps fifty pounds; in Poland still more; and in France ten, and of good quality.

There are different qualities of cherries: 1st. White, of an exquisite taste, a mixture of sweet and sour, a single one of which weighs half an ounce. It is called noble, and is found in Europe, in the Crimea, and in Poland. 2d. The common white, a smaller variety, a pleasant taste, but a little sour. 3d. Of blood color; small, but sweet. 4th. Black, of sweet taste, and with a thin skin. 5th. The hard cherry, with a large and hard stone; flesh dry, and taste sour, bordering on the bitter.

The first of these is served on the tables of the rich. The second is common, and is not only eaten, but is also mixed with the third and fourth kinds for sweetmeats. They are also dried for use in winter. The last kind are not esteemed, but are given to children. All the others abound with an agreeable and refreshing juice, and syrups and sweetmeats are made of them in the same manner as from the gooseberry.

To obtain good cherries in the State of New-York, it is necessary when the trees are in the right condition, to gather the fruit, cutting off the stems, and confine them in a cask. As soon as they are received, the ground being well prepared and manured, separate the pulp from the stones; bury these in the earth, about eight inches apart. In a year or two, when the young trees are vigorous, transplant them in the autumn to the place designed for them. Throw barn-yard manure round their roots. The manure may be mixed with blood from the slaughter-house, and in the third year the young trees will bear fruit. But constant care should be taken of them.

The peach-trees of New-York might be improved by grafts from Germany and France, when the buds are partially developed in the spring. The communication by steam and railroad is now very rapid. I commend this to the intelligence of the farmers and of amateur fruit-growers. I repeat that in Germany all the public roads are set with these trees, and thus the crop produced is very large, and their income covers the cost of keeping the roads in order.

If one would make a syrup of cherries, the process is as follows: As soon as the cherries are ripe, gather them and leave them in a heap for forty-eight hours in a moderate temperature. Then press the cherries and strain the juice. Boil the juice as directed for gooseberries, without sugar. When it is cleared of skum, add sugar to your taste, and boil it a second time with the sugar, and again skim till it is clear. Then add cinnamon or cloves to your taste. Let the syrup cool, place it away in glass vessels, and cover them as in the case of gooseberries. If the syrup begins to mould after a time, re-boil it and add more sugar.

If sweetmeats are to be prepared of cherries, the pulp must first be separated from the stones, and the juice boiled with the sugar for half an hour. Honey may be substituted for sugar, but the taste will be injured, and the peculiar effect of the honey must be overcome by the use of spice, the spice always being used in the form of a powder.

Dried cherries are good in some diseases for convalescents, when boiled, and are prized by children in the winter. Where cherries are very abundant, they are manufactured into spirits called Kirschwasser, the purest and most wholesome liquor of Germany. It is sold extensively in France, England, and the United States.

4. The Prune.

But few prune-trees are seen in the United States, and the prunes which are in the market are sour and small, but are still of some value when dried. When cooked, they remove obstructions or are laxative. A few of a better sort are found, but are very dear.

The prune is of several species. Besides those to which we have referred, they are white, chestnut, and blue. There are also others. The small prune, white and a little yellowish, has an excellent taste, is easily separated from the stone, and is used in France for sweetmeats. It is found in the environs of Orleans, of Blois, and on the banks of the Loire. The large white has a bitter taste, brisk, and a little tart, and is used only for eating when fresh. It is found all over Europe.

The Rainglotte has a green color; is large, with an exquisite taste, and is gathered before it is ripe. It is used in France in the manufacture of a liquor called *Chinois*, of which the consumption is very large and the production very profitable.

There is still another excellent kind of white prune, of the size of a duck's egg. It is found in Switzerland and in France, in the environs of Blois. In Poland I have successfully grafted trees from buds brought from Switzerland, though they were two months in the passage.

The chestnut-colored prune is of the same size as the preceding, and is very profitable; but the deep blue is the most valuable. There are two varieties. In one the pulp is easily separated from the stone. When it opens, it has the color of the skin of the chestnut; but in ripening it is covered with a rime, which changes its color into a deep blue. Its flesh is yellow. The German is not so good as that from Poland. It is less fleshy; its stone is large, as may be seen in those which are imported dry into America, and which are called Tzewtchken. The Hungarian is most esteemed. It is delicious, and is made into a liquor called Kivoritsky, or Plumberry. The other kind is oval. The pulp is separated from the stone with difficulty. It is called the prune of Damas, whence it originated. It is more savory, and more juicy, and sweeter than the other variety. It is imported into New-York dry, and is called the Prune of Bordeaux.

But the best kind is in the environs of Chinon, in France, and in the department of Cher and Loire, and enriches its cultivators by a large and profitable commerce in France and England. The Hungarian is not superior to this.

The prune is a very valuable gift of Providence. As fresh fruit, they are wholesome, and refreshing, and nutritive. Dried, they may be preserved many years. Made into sweetmeats, they keep many years, are useful for children, with their bread, and is employed in puddings, and in making valuable liquor.

Prunes are dried as follows: Lay them upon a flat surface woven with young branches of trees, in the manner of a basket, but less close. Expose them to a moderate heat, as in an oven after bread has been baked, and let them remain till the second day; then turn them, and again expose them as before, till they are completely dried. In Germany they are dried for a full hour, in holes dug in the ground. Some bury them with a fire in the ground, by which means they are made to taste of smoke. Another inconvenience is, that the windfalls, or wormy prunes, are gathered among the good ones, which is scrupulously avoided in France.

Another manner of drying them is as follows: Those prunes which are easily separated from the kernel are selected, the kernel is removed, and each prune is fastened upon a small wooden peg, and thus dried.

Sweetmeats are prepared as follows: The white prunes are stoned and placed in a kettle over a moderate fire. When they boil, add sugar, more or less, according to one's taste, or say four pounds to a bushel or more. When properly thickened and cooled, remove it into pots covered with brandied paper. The blue prune is treated in the same manner, but without sugar, and with cinnamon or cloves. They should boil sixteen hours, and the greatest care must be taken, constantly stirring them with a wooden spoon, until the preparation is entirely finished. The longer this process is continued the longer they will keep.

They who wish the pleasantest sweetmeats should take half of these prunes, and half of those of Damas, and prepare them as those last described. When the juice is clear, and the stones all separated, the juice should be strained. If all can not be prepared at once, pour back the juice into the kettle, and then add more prunes and proceed as before.

To obtain prune-trees, the same method should be observed that we have described when treating of peaches. But the ground selected should be protected from the north wind. The prune likes company, and if planted separate from others, will not succeed so well as when enclosed in an orchard.

5. The Apricot.

An apricot is not of great value, but it demands a great deal of care, and should be protected from the north wind. The least frost destroys the flower, and renders the tree barren. They should be arranged in rows against a wall, and exposed to the southern sun.

Apricots, when skinned, stoned, and boiled with sugar and white wine, produce a marmalade, which is good for a dessert, and wholesome for convalescents. SANIEWSKI FELIX.

[Translated from the French Manuscript by the Editor.]

To be continued in the next number.

PROMOTION OF INVENTIONS—ASSOCIATED INVENTORS.

Men do that for which they have means. Capitalists buy to sell at an advance, and the possession of capital directs their mental faculties to study the most safe and lucrative investments. Whatever genius for literature, art, or science they may possess lies dormant; the mind being drawn by interest to find the way of using most profitably the instrument which is already in possession.

Men without capital, if they believe they have genius, use their mental powers to advance their fortunes. Hence it is that authors, artists, inventors, etc., seldom possess wealth until they have acquired it by their works. The mere possession of capital in early life, or even the expectation of it, diverts and withholds the mind from patient study and labor, without which even the greatest genius can not attain the excellence that faculties not much above mediocrity can attain in communities where good instruction is offered them. And hence it is not to be expected that inventors will individually have means to establish their inventions.

Their resource hitherto has been to seek the coöperation of capitalists. But capitalists, not having studied, are not able to see the capabilities of inventions, until they are in successful operation. Watt in vain, for many years, besieged the doors of capitalists, before Dr. Roebuck, a man of more science than capital, invested an inadequate sum in his enterprise, and suffered loss by it. After more delay, Boulton, a man of sufficient capital and extraordinary business talent, formed a copartnership with him, and expended fifty thousand pounds before one pound was returned. Fulton, for many years, appealed to capitalists, and was derided by them before he got means to place a steamboat upon the Seine, which was deemed a failure, and ten years more elapsed before he made a demonstration that could allay the apprehension of failure. Evans, Trevithisk, and many others, for half a century struggled to introduce the locomotive, and were deemed insane; and they were not more unlucky than most inventors.

This glaring truth, that wealth diverts the mind from science, and that therefore men of wealth are not likely to promote inventions, until they see with their eyes what they can not see with their brains—that they will accomplish the objects intended—this trite and established truth should admonish those who rely upon their intellectual powers, that they ought to unite, and aggregate their small means for the purpose of putting their inventions into operation, so far as to demonstrate their utility, to the satisfaction of capitalists, who certainly desire to promote whatever will yield large profits, and are backward only because they can not by calculation find out the result of a machine not yet built.

Capital governs, with what little science its owners have picked up. The bookseller is boss-author; the shipping merchant is boss-engineer and naval architect, and smiles at "theorists" who decry the tub-like shape of his ships, and the lumbering complication of his engines; and if he believed in improvement, he would not desire it until his present ships are worn out. And men of science, disregarding each other, bow to these blind idols. Will this continue much longer? Is it not yet possible to organize a company of inventors, and of such liberal capitalists as may be disposed to promote inventions?

The reply to these questions is stereotyped: "Inventors can't agree!" This reply is not true. Inventors can agree as well as traders, or manufacturers, or politicians.

We now propose to outline a plan, which others may amend, for a Company of Inventors and Capitalists. And this we do, not with the intention of doing more than naturally should be done by journalists who have peculiar facilities for aiding in the first steps of such a movement. What we intend is to collect the names, subscriptions, and opinions of those who are willing to join in such an effort, if it can be commenced with sufficient means. We therefore invite all who are so disposed to communicate with us by letter or personally. If we find the prospect encouraging, we shall willingly make our pages a medium of communication, without charge, until a company has become able to do without such help.

The Rooms are a burdensome expense to a new organization. But there are two institutes already established, and another building, which will allow the use of their rooms for such an object. The American Institute, the Mechanics' Institute, and the Cooper Institute intend to promote such objects to the best of their ability. There is therefore no occasion to apprehend an absorption of the means in the mere expenses of the organization. On this point we speak advisedly.

A Fund is indispensable. This fund should be devoted to the practical demonstrations necessary to convince the public of the utility of inventions. Half the profits of it should remain in it, to increase it. The stockholders should vote per share, as in other companies.

Inventors would offer their plans and conditions. Each stockholder would be at liberty to appropriate his stock to any plan which he preferred. But if any stock should not be thus appropriated, the directors should appropriate it.

The company should receive a portion of the profits; but such receipts should be credited to those whose stock was invested in that particular invention.

We will illustrate our meaning by an example. Fulton brings in a drawing of a steamboat, with descriptions, calculations, etc., and such proof of its utility as he can adduce. He argues his case with the members individually, and with the directors. He persuades them to appropriate ten thousand dollars. But he wants twenty thousand. Evans brings in his plan of a locomotive, and in the same way he gets a subscription; and others do the same. But neither gets the amount he requires. Fulton proposes to the others to take their funds, with the consent of their subscribers, on condition that out of the first fruits of his invention he will put four times as much into theirs. They may deem this proposition preferable to waiting for more subscriptions; if so, they will become stockholders in Fulton's enterprise, and aid in establishing his invention; and he, if he obtain means, will in like manner aid them.

Another example: Gurney proposes his plan of a steam-carriage, and invites others to improve upon it, and to contribute means to build it, on condition that, when it has become profitable, the directors shall appraise the contributions of each who has in any way promoted the general result, and shall divide the stock of the invention among them, in proportion to the value of what each has contributed. Hancock offers to construct a boiler, which Gurney accepts, though he secretly prefers his own. Symington offers a ratchet engine, as a sure means of avoiding the pitching and rocking that a crank and connecting rod will produce: this Gurney politely declines. Smith, the wheelwright, offers a set of wheels, which are accepted. Norris will build the engines, and take half pay in stock; and twenty different persons will furnish money enough to do the rest. Gurney's carriage finally is built, and runs at fifteen to thirty miles an hour. But cautious capitalists say, "Wait! he will run into carriages, frighten horses, and there will be damages to pay. He will break down, blow up, and so forth. No, no! it won't pay! We won't go into it! Wait awhile!"

In this stage it is well to have an association of men who have sufficient science to *know* that these fears of mere ignorance are groundless. Such men will maintain the invention until the bugbears are no longer formidable. When these irrational apprehensions are allayed, and the mere physical-eye can see that the invention is profitable, a rush of pirates takes place and Gurney would be robbed and ruined if no force but his own were ready to defend him. But the united sympathy and interest of the members of the company would put the pirates handsomely through the courts; and, as in the case of Watt and Boulton, they would have to pay three times the patent fees. At last the invention has become valuable in the market. The directors form a joint stock, giving to each as many shares as they deem him justly entitled to, after a consideration of the contributions and hazards.

We need not spin out this thread. We will conclude by suggesting a few conditions:

1st. Each member to pay ten dollars per year, and as much more as he pleases; to be credited seven per cent interest for pre-payment, and to forfeit fourteen per cent for delay of payment.

2d. Each member to vote on the amount credited to him on the books.

3d. As soon as a member has $100 in the fund, he may receive half the profits on his share; the other half to be added to his share, besides the annual payment of $10.

4th. Each member may appropriate his share of the funds to such inventions as he prefers—the profit or loss to be his own; but the directors to have control of the funds, so that they shall be returned with the stipulated profit.

5th. Funds not thus appropriated by inventors may be appropriated by the directors, on account of their owners.

6th. The directors, by a nine-tenths vote, may veto an appropriation of a member, if, in their opinion, the invention is unworthy of trial. This is a better guard than to exclude the invention from exhibition, because it is hazardous to say that it may not receive such improvements as will make it worthy of trial.

Such is the general idea, not wholly original, which we have of an organization that shall in time be able to inspire confidence in capitalists, and until that time shall enable inventors to help each other. We have known inventors to work at low wages on their own machines, while their employers made fortunes by them. And if inventors are too indolent to avail themselves of the great principle of association, such will often be their lot. They may fancy that they can contend with wealthy freebooters; but one may as well attempt to beat an army with his fist.

SAWING RED-HOT IRON.—Iron bars and shaftings are cut to length by a circular soft steel saw. The iron to be cut is heated red hot, and in that condition is presented to the saw, which rotates at high velocity, and is kept cool by causing its lower half to revolve through a trough containing cold water. A large bar of iron can thus be cut through in a few seconds.

STEAM-CARRIAGE PROJECTS.

Among the numerous steam-carriage plans that were really good, there have been a few so absurd as to have excited prejudice against the invention. Among these are two—one English, and one American—both of which have been practically tried, to the full satisfaction, no doubt, of those who hate all who pretend to know more than their neighbors.

Garvey, in his evidence before a Committee of the Commons, 1834, says: "Mr. King, who is a naval man, associated a steam-carriage with a vessel, and built one with 'two decks;' two tiers of passengers above; and engines in the 'hold,' between the wheels; the weight was ten to fourteen tons. It was drawn into the road; the steam escaped from the pipe into the 'hold;' the engineer jumped off, and the wheel went over his head."

A friend has recently given us a picture and description of "Gen. Semple's Prairie Steam-Car," cut from an "Extra Sun," and credited to the *Scientific American*. The date is not upon the piece of paper.

It begins by saying: "There are few plans of enterprise, now in progress, to which more importance attaches, or which excites more interest, than that of navigating the extensive prairies by steam-power, and with carriages capable of accommodating one hundred passengers, besides twelve to twenty tons of merchandise." It goes on: "Gen. Semple, now in the Senate at Washington, some time during the last summer adopted the very rational conclusion, that the power of steam could be as efficiently applied to the propulsion of large carriages on prairies, as to other purposes; and that whatever load might be drawn by 100 horses, might also be propelled by a 100 horse-power engine." * * "We have no particular instructions from the honorable inventor, with regard to the construction of the upper works; but having the foundation and general plan, we have presented the plan which appears to us the most convenient for the purpose intended."

The wheels are six feet high, and five wide. There are four drivers, which may be turned "by cranks or by gear-wheels attached to the ends of the cylinders; the latter mode will be preferable if a rotary engine is used, in which case the two gear-wheels on each side will be driven by an intermediate wheel, which will take to both at the same time. Either plan is sufficiently simple; and, on the whole, there is no doubt of the complete success of the enterprise."

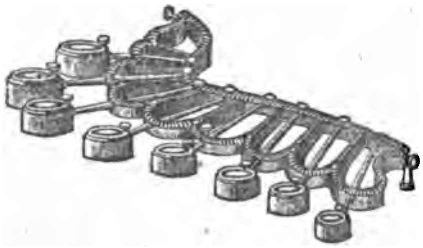
Taking the wheel as a measure, we find that the car is twenty feet wide, twenty-three high, and forty-seven long. It has a ladder to reach the first story, and stairs to the second. Within two years this oracle has approved another scheme to put a heavy locomotive on a plank roak.

Now, these schemes have in them all the elements of failure, and not one element of success, if the opinions of the English steam-carriage men are correct.

We have been told that General Semple spent $20,000 in an attempt to put this into execution. Whether he was induced by the assurance of the very *Scientific American*, that "on the whole there is no doubt of the complete success of the enterprise," we do not know. But when men of "science" give such assurance, and such machines are built, it is natural that those who witness the failure should have but little confidence in the self-styled men of science. Thus it is that quackery, or perhaps puffery for pay, destroys all confidence; and the press can aid inventions only so far as it finds men qualified to reason upon them—that is, only so far as it is read by theoretical or practical mechanics.

Twenty-six years ago, the word "locomotive" was not applied to the engines on railways; they were called steam-carriages. Steam-carriages, then, have succeeded on iron roads, and that so perfectly that there can be little doubt of their success on roads of a somewhat inferior quality.

DOLCE CAMPANA ATTACHMENT TO BOARDMAN, GRAY & CO.'S PIANOS.



THIS improvement of the pianoforte is claimed to be one of the greatest made for a long time; and from what we have seen, and from the descriptions we have had of it, we should think this claim well founded, although we have had but a very limited opportunity of testing it for ourselves. The following is given as the best illustration of it, in connection with the small engraving which accompanies it.

The crooked bridge of a piano is connected with, and, as it were, part of, the sounding-board; and the strings, passing over this bridge, and connected thereto, when put in motion give vibration to the sounding-board, and thus power and volume of tone to the piano.

The Dolce Campana Attachment consists of a series of weights, held in position in a frame, and is so placed and secured in the piano, that these weights are held over this crooked bridge; immediately under them there are screws inserted in the bridge for the weights to rest upon when the attachment is in use, and the pedal is so connected with the attachment that when pressed down, the weights (attachment) drop so as to rest on the screws, and thus on the sounding-board; and when the foot is off the pedal, and the pedal lifted up, the Attachment rises off the sounding-board, and has no effect; but when the pedal is pressed down, the weights, or attachment, rest on the sounding-board, controlling its vibrations, and the tone and power of the instrument; and the attachment thus being under the control of the pianist, he can produce the most beautiful effects at will. When the attachment is in use, it produces a delicate, soft, bell-like, silvery tone in the piano, truly enchanting; and when we take into consideration that the great power of tone of the piano is in the free and perfect vibration of the sounding-board, and that the sounding-board's vibration and tone are under the perfect control of the performer, so that he can let it sound full or graduate its tones to the music and effects wished for, it will at once be clear that the invention is a valuable one. By using it in connection with the harp, or soft and loud pedals, a great variety of effects and changes can be produced, like changing the stops of an organ; and by holding the loud pedal down, and striking full chords with the fingers, and then letting the attachment off the bridge, a full and perfect swell is produced at the will of the performer. The Dolce Campana Attachment is truly a legitimate and valuable improvement, the most valuable one of modern times, to the piano-forte. Messrs. Boardman, Gray & Co., of Albany, N.Y., are the inventors and patentees. It is applied only to their otherwise truly superior piano-forte. They have lately patented another valuable improvement, which consists in making the sounding-board of their pianos corrugated, so that each side is fluted, thus gaining a much greater surface, and securing firmness and stiffness without the necessity of cross-bracing, as in the ordinary sounding-board. This, and its peculiar form, secures it from a liability to crack or split, and it has been found on trial to give a much greater volume of tone, and the quality also is much improved.

We take pleasure in calling attention to the advertisement of Messrs. Boardman, Gray & Co.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

SAVE YOUR SUDS.

"A PENNY saved is as good as a penny earned." In the form of soap-suds, there runs from the kitchen fertilizing matter enough to supply the family with garden vegetables. How can it be saved and applied? Let me suggest. As often as washing day comes, let all the suds be carefully saved, in a tub or receptacle kept expressly for that purpose. After sunset, let it be applied to whatever in the garden needs it most. Cucumbers, squashes, and melons need frequent applications of it while small, and it will do them as much good as guano or superphosphate; having this advantage—it costs nothing, and is always at hand. Tomatoes, cabbages, beans, peas, corn, and potatoes, and even weeds, will all be grateful for small favors of this kind.

Your grape vines should occasionally have a pailful; the oftener and the stronger the better. By the way, vines need frequently looking after at this season. Useless shoots and suckers should be lopped off. Direction should be given to new branches; ties should be examined and secured when necessary, and the ground should be kept loose about the roots, and free from weeds and grass. The removal of leaves for the admission of light to the fruit, I have no faith in. Let them have the covering which Nature designed, and they will mature and ripen in due time. You need not fear making the ground too rich; the grape is a voracious feeder.

But I am not done with suds. Every garden has, or should have, young fruit-trees. To these application should be made of strong suds frequently. It will destroy insects, remove moss and scurf, promote the health and vigor of the bark and the growth of the tree.

But this is not all. There should be a cess-pool, to which all the wash of the kitchen and other parts of the house should be conducted. Into this let there be *dumped* loam, muck, leaves, weeds, bones, old shoes, ashes, old plaster, and what not. If properly cared for, it will be found, at planting time, to contain sufficient for a liberal dressing for the whole garden, and that, too, of the very best of vegetable aliment.

Try it, reader, and save yourself the trouble and expense of running about, in the spring, after manure for your garden. R. B. H.

RINGBONE OCCURRING IN HORSES.

RINGBONE is another form of exostotic disease, the pathology or nature of which, not differing materially from those already considered—spavin and splint. Its location is the pastern-bone. Most generally, the joint is involved, so that the final result is *anchylosis* (loss of motion) in the joint formed by the *os suffraginis* and *os coronæ*, (large and small pastern bones.)

Nature of Ringbone.—The term *ringbone* is far behind the times as regards our present knowledge of *nosology*, (which signifies the doctrine of the names of diseases;) yet to the unprofessional it is somewhat suggestive, and therefore may as well be retained. It signifies a circular eminence around the pastern-bone. The ring is formed by incrustation, or *osseous* deposit around the bone, or joint, as the case may be; yet, in order to make out a case that comes strictly within the meaning of the word—that is, as horsemen interpret it—there must exist complete *anchylosis* of the pastern-joint.

Various osseous deposits are now and then thrown out on the pastern and coronet-bones, varying in shape, size, and seat; they are often unaccompanied by lameness, and, consequently, stable-men have named them "*cling-fasts*," or something of the sort. They all, however, come under the disease known as *exostosis*.

A pure case of ringbone—*anchylosis*—generally has an external origin: we find that an osseous deposit commences at the lower margin of the pastern, and upper part of the coronet-bones; this spreads so as to involve both joint and ligamentary tissue; and if there be any predisposition, in the animal, to *ossific* diseases, the malady may spread, so as to involve fetlock, pastern, and coffin joints.

Causes of Ringbone.—This disease, in many cases, is hereditary, transmitted, either directly or indirectly, through the sexual congress. I shall not contend that its *direct* origin is a settled point, but merely intimate, in support of this opinion, that I have seen colts of only a few weeks' growth the subjects of this disease. I once bought an unweaned colt, and brought it up by hand, as the saying is. At the age of four months, I observed tumefaction on the pastern of both hind-legs, which ultimately resulted in stiff joint. The little creature had never been subjected to any sort of labor or exercise to produce lameness, and therefore the disease must have originated at birth. Mr. Percival, whose opinion on veterinary matters is unquestioned, says that his attention to the *hereditary origin* of ringbone, was first aroused from a remark made by an extensive dealer in horses, in reply to a question put to him, how it happened, that but few ringbones were met with, compared to the number that attracted notice in times past. The reply was: "Because no breeder of horses, now-a-days, will send a mare to a horse having ringbones"—a very good example for American horsemen to imitate; for a vast number of our best, as well as inferior horses, are the subjects of this infirmity.

Of the *indirect* transmissibility of this disease we have ample proof. It lurks in breed just as scrofula and consumption do in the human subject.

The author just quoted remarks that "a coarse or half-bred, fleshy or bony-legged horse, with short and upright pasterns, is the ordinary subject of this disease; and there exist satisfactory reasons why we should expect him to be so. The pastern and coffin-bones constitute the nethermost parts

—the pedestals—of the columns of bones composing the limbs, and being so, they receive the entire weight and force transmitted from above. The pastern, being long and oblique in position, receives the superincumbent weight in such an indirect line that, bending towards the ground with the fetlock, nothing like jar or concussion follows. The very reverse of this, however, happens every time the foot of a limb, having a short upright pastern, comes to the ground. In such, instead of the weight descending obliquely upon the *sessamoids*, (two small bones at the posterior and inferior part of the fetlock joint,) and the fetlock bending therewith, it descends directly, or nearly so, upon the pastern, making this bone entirely dependent on the bone beneath it—the coronet—for counteracting concussion; and should any thing occur to diminish this, or to throw more weight on the bones beneath than they can counteract, jar of the whole apparatus ensues; and an effort of nature to strengthen the parts, by investing them with *callus* and ossification, is likely to be the ultimate result. For we would view ringbone, disease though it must assuredly be called, as frequently, in young horses, a recourse of nature to strengthen weak parts—the bones being unequal to the exertions or efforts required of them."

From the fact that horses of the above peculiar conformation are most subject to this malady; and knowing, as we do, that defects and faults *acquired* become *permanent* in the race, all doubts as to *indirect* hereditary origin are set at rest.

The *direct* causes of ringbone (and at times they are merely *exciting*) are ligamentary strains, brought about by over-work, extraordinary efforts of speed, *pulling up* suddenly, etc. In short, either *sprain*, *injury*, *blow*, or *bruise*, likely to produce inflammatory action in the region of the pastern-joint, may result in ringbone. Still, I contend that, aside from such causes, there must be lurking in the system of the subject a predisposition, denominated by human practitioners *idiosyncrasy*—a weakness in *bone*, *limb*, or *ligament*—the result of errors in breeding, aggravated by a too early use of the muscular powers, and want of proper attention to food and stable management.

It appears, therefore, that there is no *direct* or *specific* cause for ringbone, and we can only regard as *indirect* those causes which, in a large majority of cases, are invariably present.

Treatment of Ringbone—Preliminary Remarks.—It would be very interesting and funny to notice some of the methods of treating ringbone; but the subject of this malady is a creature, whose mental and instinctive capacities combined far surpass those of any other animal, and, indeed, do not differ in kind from the mental nature of our species; in degree, however, there is evidently some difference.

He has also nerves to feel, is keenly sensible to pain; and therefore such atrocities as we frequently see perpetrated upon this noble animal, even under the sanction of long usage, are neither interesting nor pleasant matters for contemplation.

There is a common error abroad, and in some of the popular works on farriery the error is stereotyped, that "*ringbone is fed by a bladder at the posterior part of the pastern*," which has just about as much to do with the disease as I had with the late victory achieved by the "Know-Nothings." This error, however, would not amount to much, only that it has led to the infliction of a cruel operation, without the least advantage. In short, it tends to make matters worse than they were before; for this bladder is in reality a *bursal sac*, the use of which is to secrete and contain a fluid called *synovia*, (known as joint-oil,) used for the purpose of lubricating tendons and their articulating surfaces, so as to prevent friction; therefore its extraction must be disadvantageous to the limb.

It is not enough, forsooth, for the poor brute to suffer this excruciating torment, which usually attends inflammation and ossification of the parts; but he must, in addition, submit to a species of cruelty unheard of in the annals of human medicine, and for which *veterinary science* furnishes no authority. It has been my painful duty occasionally to take in charge subjects that have been most shamefully maltreated in this respect, and I have seen others that have been the subjects of cruelties that would make a Christian shudder to think of, (see "Modern Horse Doctor," p. 278;) and I do hope that the reader, if he be in any way interested in horses, will set his face against every species of barbarity practised on them, and endeavor to aid those who are now engaged in the work of reform. I feel assured that if the American people were better informed as to the nature and treatment of diseases occurring among live stock, these evils would cease to exist. But a new era is dawning. America will, ere long, boast of her veterinary schools, and from them shall go forth a class of the right kind of men, to illuminate the comparative darkness that now exists.

Now as regards the *treatment*. The idea of *curing* ringbone is really absurd—nature never intended that it should be cured. The new growths, if I may so call them, and the changes that take place in the joint, are a part of nature's own handiwork, in view of strengthening a weak bone or joint; and therefore there is no need of cure. To attempt a cure can be regarded in no other light than forcing nature to turn a somerset! Our object in the treatment is merely to aid nature, (that is all the assistance she requires of us.) All we have to do is to excuse the animal from work, and apply remedies that are calculated to relieve pain and lessen lameness. We treat the disease, when first discovered, just as we should a recent spavin or splent, by cooling lotions, cold-water bandages, etc. If the parts are inactive, we apply the usual counter-irritants. In all cases, therefore, of ringbone, whether it have a pereosteal, bony, cartilaginous, fibrous, or synovial origin, rest, light diet, and the above means are most calculated to promote *anchylosis* of the joint, which is nature's cure.

As regards the bony tumor, that is generally nothing more than an *eye-sore*, and very seldom causes pain, (that is, after the new formations are completed.) There is some stiffness ever after to be observed, but that is not due to the tumor, but is the natural consequence of stiff joint.—*Written for the Ohio Farmer, by G. H. Dadd, Veterinary Surgeon, Boston, Mass.*

Gas for Fuel.—The Albany *Atlas* says that a mechanic is manufacturing furnaces for heating dwelling-houses, gas being used as a fuel. A room 15 feet square can be heated, it is said, at a cost of about one cent and a half an hour.

This is just what Mr. Shaw, of Boston, has been doing successfully for several months.

STATE FAIRS FOR 1855.

Vermont,	Rutland,	September 11 to 13.
New-Hampshire,		September 12 to 14.
Canada-East,	Sherbrooke,	September 11 to 14.
Ohio,	Columbus,	September 18 to 21.
New-York,	Elmira,	October 2 to 5.
Connecticut,	Hartford,	October 9 to 11.
Maryland,	Baltimore,	October 30.
Canada-West,	Coburg,	October 9 to 12.
Indiana,	Inianapolis,	October 17 to 19.
Illinois,	Chicago,	
New-Jersey,	Camden,	
Kentucky,	Paris,	September 25 to 28.
North-Carolina,	Raleigh,	October 16 to 18.
Pennsylvania,	Philadelphia,	
Georgia,	Atalanta,	September 10.
Virginia,	Richmond,	

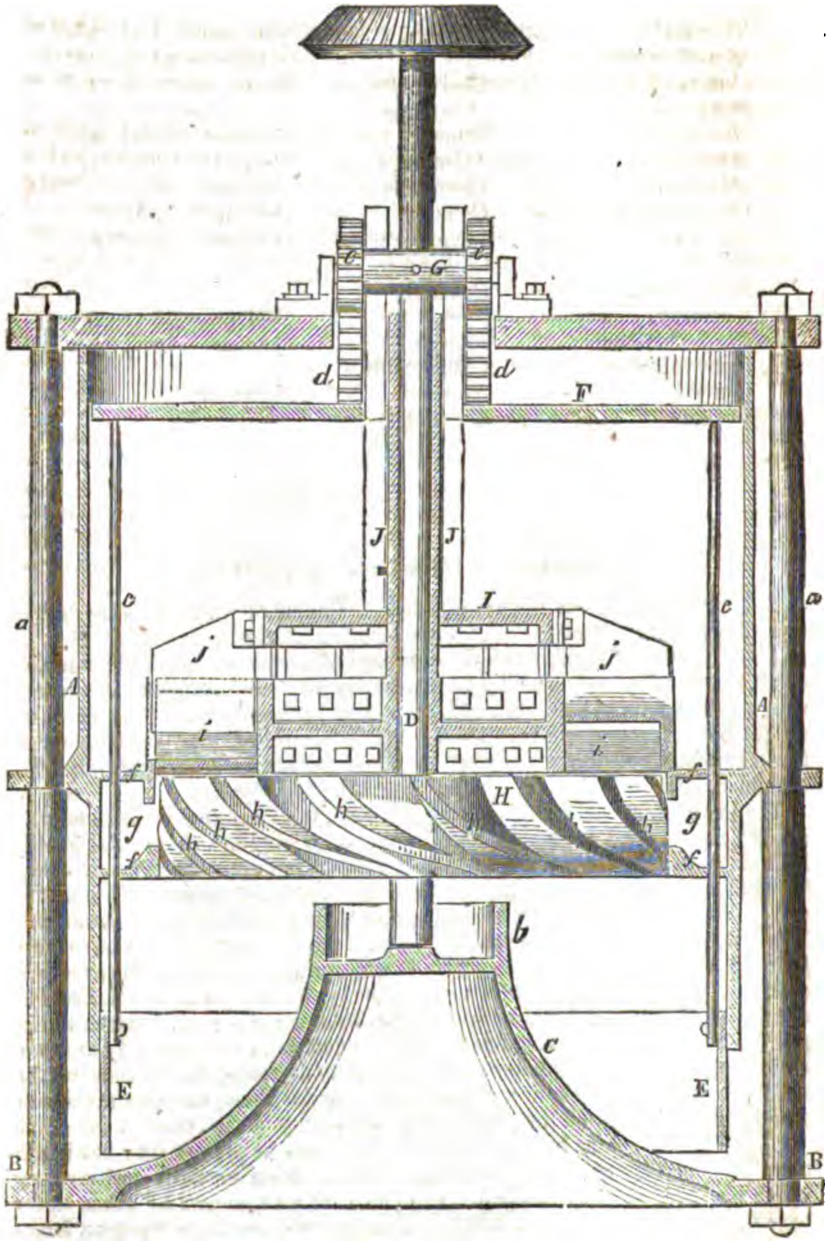
KEEPING FURS IN SUMMER.

A Troy furrier, in one of our exchanges, the name of which we have lost, thus directs as to the treatment of these valuable articles.

About the 1st of April, or on the approach of warm weather, lightly whip, comb, and brush your furs till they are perfectly free from dust; sprinkle them with a little spirits of any kind, and wrap them in clean linen. Put them in a tight box or drawer, and keep them from the air as much as possible. In this situation they may remain ten or fifteen days, when they ought to be examined, and the whipping, combing, and brushing repeated.

The insects most destructive to furs, are, first, the black bug which infests smoked meats, etc. It appears and deposits eggs early in the spring. This kind of moth does not eat the fur, but preys altogether on the skin. Next the small ash-colored miller, which produces the moth that destroys all kinds of woollen stuffs, and may be seen hovering about the candle on a summer evening. This kind particularly preys upon and destroys the furs, and ought to be most guarded against; also the mite, which is very numerous. They appear like dust, and are scarcely perceptible to the naked eye. They subsist upon and destroy the fibrous membrane which attaches the fur to the skin. Hence the practice of sunning and airing furs is highly prejudicial, for as insects fly about in the air, it not only affords them an opportunity of getting in and breeding, but the warmth of the sun nourishes and supports them, and at the same time spoils the color and destroys the life and beauty of the fur.

Coarse furs—such as bear and buffalo skins—may be preserved by beating them well in the spring, and heading them up in an air-tight spirit-cask, which has been recently emptied. Especial care must always be taken to have furs, woollens, etc., clean and free from insects when they are put up for the season—and no means are adequate to the preservation of furs that are badly dressed and not cleansed of the natural grease.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VAN DEWATER'S TURBINE WATER WHEEL.

THE accompanying engraving is a vertical section of the water wheel of Henry Van Dewater, of the city of Albany, N. Y., embracing an improvement on his patent of October 1853, for which he has taken measures to secure a patent.

The improvement consists, first, in the employment of a concave guide at the lower part of the casing underneath the wheel, in combination with a gate which surrounds it, to regulate the discharge of water from the casing or wheel. Second, in the employment of a peculiar gate and a series of shutes made and arranged to admit the requisite quantity of water to the wheel. Third, in surrounding the wheel with a chamber (filled with water) which, in connection with the peculiar form of the buckets, makes the water exert an upward pressure to relieve the bearing step of the weight of the wheel.

A is the cylindrical casing of the wheel, which may be made of cast-iron. It is secured in its upright position by the rods, *a a*, to a flanch, B, underneath the casing. This flanch is placed at the lower part of the guide or deflector, C, which is of a concave conical form, and projects upwards a suitable distance within the casing, A. On the upper end of this guide is the step or bearing of the wheel shaft. This step is secured by an upright ledge, *b*. Within the lower part of the casing there is a rim or band, E, which forms a gate. This gate works snugly within the casing, and has four vertical rods, *c c*, (two shown,) attached to it at opposite points. The upper ends of these rods are connected to cross bars, F, to which vertical racks, *d d*, are attached; these gear with the pinions, *e e*, at the end of a drum, G. Within the casing, A, and directly above the guide, C, is the wheel, H. It is fitted between lateral flanches, *f f*, which thus form a chamber or recess, *g*, around the wheel. The top and bottom edges of the buckets are radial with the wheel, and the intermediate points are gradually curved, so as to leave the spaces between the upper edges of the buckets wider than the spaces between the lower ends; the figure shows the form of the buckets. Directly above the wheel there is a fixed series of shutes or guides, *i*, which are placed directly over the buckets, *h*. The shutes are of a spiral form conforming to that of the buckets, and at the mouth of each there is a slide, *j*, connected to a circular rim, I, which encompasses the shaft, D. These slides, *j*, form the gate above the wheel. J J are two vertical racks attached to the upper surface of the rim, I. Two pinions in a drum (not shown) gear into these racks. By turning the drum, these pinions operate the racks, J J, and thus raise or lower the slides, *j*, according to the direction the drum is turned. By turning the drum, G, the pinions, *e e*, take into the racks, *d d*, and elevate or lower the lower gate, E. The water from the flume flows into the upper part of the casing, and the slides, *j*, being open, it passes in and fills the entire casing, and is directed tangentially against the buckets of the wheel, the quantity being regulated by the guides and slides. As the spaces between the lower edges of the buckets are narrower than those between the upper ones, the water presses upward to a certain degree against the under surfaces of the buckets, and thus relieves the under step of the shaft, D, from top weight, thereby decreasing the friction. The surrounding water in the recess, *g*, acts upon the wheel when at work. By regulating the gate, E, the unequal draft of partial vacuum upon the column of water descending from the bottom of the wheel is obviated. It will be observed that when the gate, E, is raised or lowered, there will be an equal space all around the deflecting guide, C, so that the draft is equalized at all points around the wheel. In the ordinary French turbine a valve is used for this purpose, but this causes unequal draft, and is therefore inferior to the guide, C.

These improvements on the Jonval French turbine wheel by Mr. Van Dewater are obvious. His wheels have a high reputation for efficiency. Persons in various parts of our country using his wheels, testify to their high per centage of power and excellent construction.

More information may be obtained by letter addressed to Mr. Van Dewater.

SELF-ACTING CAR-COUPLING.

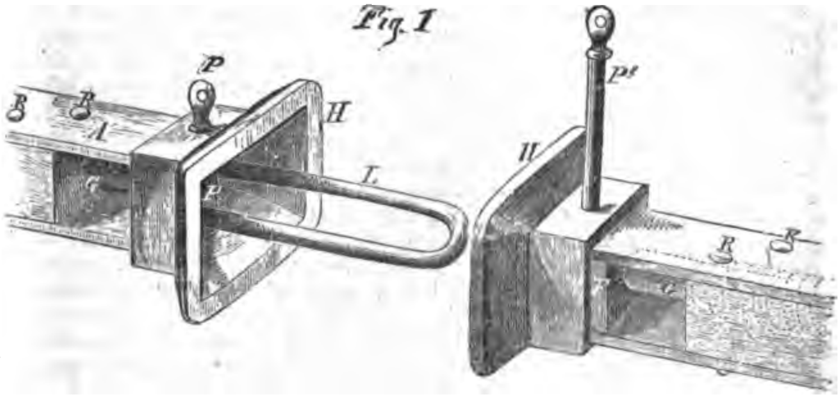

Fig. 1

The annexed engravings represent an improvement in railroad car couplings, for which a patent was granted to D. A. Hopkins, of Elmira, N. Y., on the 1st of August, last year.

Fig. 1 is a perspective view, showing two coupling-boxes detached, and fig. 2 is a vertical longitudinal section through the centre of one coupling-box, and showing the coupling link in various positions; also a coupling-pin locked in the link and out of the link. Similar letters refer to like parts.

The top and bottom bars or plates, A A, of each box are made of wrought iron, with their outer ends somewhat enlarged. The bars are riveted together by bolts, R R, and have a wooden block, B, between them. The draw-head, H, is made of cast iron, cast on the enlarged ends of the bars, A A, as shown in fig. 2, thus forming a draw-head strongly united to the wrought-iron bars. The mouth of each head, H, is wide, while the throat, at *h h*, is very narrow. L is the connecting or coupling link. C (G in fig. 1) is a bolt passing into an opening in the wooden block, B; its inner end abuts against a coiled spring, S. F is the head of this spring bolt; it is allowed room in the open space to move back and forth. Its face is fluted with section grooves, to receive the end of the link L, and retain it in various positions, as shown in

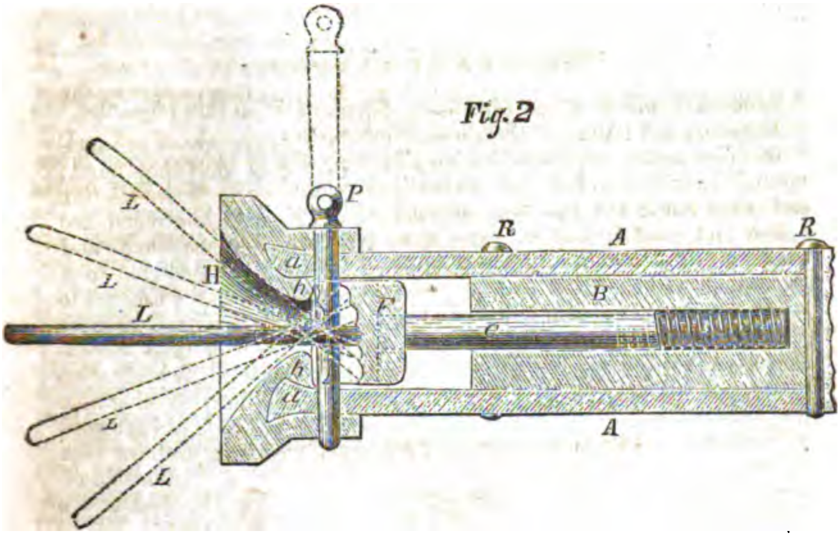

fig. 2. P is the coupling-pin. It will be observed that when the pin, P, is withdrawn, and the cars uncoupled, the spring bolt, C, will be forced forward in the box, and the pin, P, will then rest on its top as shown by the dotted lines, fig. 2, which represent the bolt and pin in this position. When it is desired to couple the two cars—by running back the front or bringing forward the rear one—the link, L, will enter the throat of the box, and push back the serrated head, F, of the spring bolt in the open space of the box, when the pin, P, will drop through the opening of the link, and thus couple the cars. Owing to the narrow throat of the head, H, and the form of the face of F, this self-acting coupling is perfectly adapted for cars of all heights, as shown by the various positions of the link, L, in dotted lines, fig. 2. This must be a very durable and strong draw-head, as the crushing force comes on the cast-iron head, H, while the tensile strain is sustained by the wrought-iron bars, A A, because the pin, P, passes through them as well as the shoulder flange of the head, H. The mouth of the head, H, is so formed as to resist sudden and great shocks.

This self-acting car-coupling has been in use for more than a year on the Canandaigua & Elmira Railroad, N. Y., and has been found perfectly practical, superior to, and more economical than the ordinary kind. It has also been adopted by the New-York & Erie Railroad, whose superintendent regards it as the only coupling yet brought before him well adapted for all the varying conditions and circumstances of railroads.

More information may be obtained by letter addressed to Mr. Hopkins, at at Messrs. Fowlers & Wells, No. 308 Broadway, this city: or W. P. Yates, Elmira, N. Y.

Trap Rock Manufactures.—J. T. Chance, of Birmingham, England, has taken out a patent for fusing trap rock, and submitting it to severe pressure, while in that state, so as to make it into slabs, and other forms.

TESTING OF CANNON.

A CORRESPONDENT of the *Charleston Standard* writes thus respecting the manufacture and testing of cannon at Washington:

Guns are cast in any shape that may be suggested by the process of investigation, then fired to test their projectile force, then fired until they burst; and when the result has been attained, with every care to determine the causes and conditions of the experiment, sections of the broken metal are carefully drilled out from different parts of the piece, from the muzzle and the breech, and the inside and the outside, and each piece is subjected to a strain to test its tensile strength. To apply this strain, one end is fastened to a frame, and the other is taken hold of by machinery, and the power is so magnified that the iron is obliged to part. In the process of these experiments, one fact has become pretty well established which rather contradicts received opinion. It has been supposed that the cannon always cooling from without, and the outside contracting, therefore, around the inside still extended by heat, would become more brittle, but this, in such tests as have been used, would not seem to have been the case. A bar cut from the outside of the cannon will generally part with about the same amount of extension as a bar cut from the inside, whether it be taken from a longitudinal or vertical section of the gun. Another fact of some importance, however, has been established. It is found that the strength of the gun may be much increased by taking the weight of metal from the muzzle and casting it around the breech. A gun, for instance, has been cast with a view to this experiment, which was much thinner at the muzzle than cannons usually are, but which was by so much the thicker at the breech, where the charge explodes. It was fired some 1200 times, under every conceivable condition likely to insure explosion, and when it did burst, the fracture occurred at the breech, as is usually the case with cannons.

ENGLISH PATENTS.

SMOKELESS FURNACE.—We have during the week inspected an entirely new arrangement of steam-boiler furnace in action on a twenty-five horse power boiler at the granaries and flour mills of Mr. Edward Gripper, Winchester wharf, Southwark. The principle of construction is that of mechanical motion applied to the bars, but different to any thing yet introduced. Every alternate bar is so connected with a cross-piece at each end as to form one entire movable frame, which is connected by gearing with the motive power. The motion given to it is angular; first, the bars rise very slowly about an inch above the stationary ones; they then move gradually in a lateral direction towards the bridge; again sink in a vertical direction about an inch below the other bars, and then move laterally forward to their original position. What are termed the stationary bars are not fixed as usual, but hung in such a manner as exactly to balance the vibrating frame with the load of fuel which it has to move, thus taking but little power from the engine to keep them in motion. The fuel is fed through a hopper and regulating inclined plain, and the whole is self-acting, requiring but little attention from the stoker. We were informed that this apparatus had been in constant use about six months, that no difficulties whatever arose from the mechanical motion; there was an entire absence of clinker, nearly perfect combustion of the fuel was effected, and during our visit not a particle of smoke was visible from the chimney. Mr. Gripper estimates the saving of fuel alone at about 10 per cent, beside numerous other advantages.—*London R. R. Journal.*

WATER-POWER ENGINE.—An hydraulic power engine which works by the pressure of a column of water, simplified and originated by Mr. James Sinclair, engineer, Stirling, has for some time been applied in several large printing-offices in Stirling, Dundee, and other towns in Scotland, having the advantage of a high service of water from the hills. The proprietors of the *Scotsman*, published in Edinburgh, have adopted this mode of power, with perfect success. The whole machine weighs 6cwts and occupies a horizontals pace of only 31 by 25 inches, and but 37 inches high. It consists of two oscillating cylinders, working similarly to a high-pressure steam-engine, the water being admitted through the axis on which they vibrate. It works smoothly, is perfectly safe, has great power for its size, and is perfectly manageable; there is no shock or recoil, and no danger of the pipes bursting. The column of water which the company allow, is 150 ft. high, which gives sufficient power to work off 2000 impressions per hour. Wherever a supply of sufficient height can be obtained, these engines are well adapted to a great variety of purposes.

ORNAMENTING WOOD.—Thos. Clayton, of Oldham, England, has obtained a patent for transferring the designs of graining on choice wood, such as mahogany, rosewood, yew, etc., from engraved metallic heated rollers, or flat surfaces, to surfaces of common woods, such as pine, by which process he obtains a close imitation of choice and expensive woods.

CARRIAGE SHAFTS.—H. A. Genetreau, of Paris, has obtained a patent in England for the application of whalebone, or of bamboo cane, to the construction of carriage-shafts.

MATCH CIGARS.—W. P. Surgey, of London, has taken out a patent for tipping cigars with an igniting composition which is fired by friction.

MISCELLANEOUS.

A LARGE KNITTING FACTORY.—The village of Cohoes, on the lower falls of the Mohawk, N.Y., is one of the best for manufacturing purposes in our country, and has progressed rapidly within the past ten years. A new factory for the manufacture of knit-fabrics, such as drawers, etc., has recently been set in operation there, which is said to be the largest one of the kind in the world; it is 395 feet long, 75 wide, and six stories high. It is designed to give employment to 600 operatives; the rooms are stated to be well ventilated, commodious, and cheerful. The name of the new factory is "The Mohawk River Mill." The machinery used embraces all of the most recent improvements.—*Scientific American.*

New Light.—The *Cleveland Plaindealer* says: "Last evening we witnessed the result of a series of experiments made by Dr. Taylor, the celebrated clairvoyant physician of this city—the actual production of a brilliant light, and of course an intense heat, by the decomposition of water. The apparatus for producing this astonishing effect is very simple, and has, as he alleges, *been constructed entirely under the spiritual direction.* It is imperfectly made, and yet serves to demonstrate the fact and the principle involved in the process. The light is exceedingly brilliant, equal to the best quality of gas, and superior in color, it being slightly of an orange tint, and producing not the least smoke. A caveat for the discovery has been filed in the Patent Office in Washington, by a gentleman of this city, who compared the apparatus with that of Paine, and the two are entirely unlike. Distinguished chemists who have examined this invention pronounce it a triumph. We do not feel competent to decide any questions that may happen to arise among scientific men; but the result we have actually seen, and verily believe that no deception has been resorted to in producing it."

Minds, when under excitement, however produced, may be directed into some new and useful channel. But the professed paternity of this professed discovery, does not lead us to place much confidence in it.

New Mode of Separating Gold from Quartz.—Professor Benjamin Harding, of this city, has just patented a new process for separating *all* the gold from quartz, without the agency of amalgam, and which also entirely dispenses with the heavy outlay heretofore incurred for massive crushers. It is assumed that by this new process *every particle* of gold can be taken from the quartz. The agency by which this wonderful result is attained, is of such a nature as to be readily understood by scientific men; and the benefits which are likely to flow from the discovery are too obvious to require remark.—*N. Y. Journal of Commerce.*

To Transfer Patterns, Etc.—The *Liverpool Journal* describes the following process for transferring the forms of natural objects or the patterns on ribbons to paper:

"Saturate common writing paper with porter, coffee mixed with sugar and cream, or the solution of achil. Place the object whose form is to be transferred on the prepared paper, and expose them to the action of the sun's rays or those of a common fire.

Various other solutions may be used for the same purpose, as bichromate of potash, yellow chromate of potash, etc. When figured satin ribbons are saturated with such solutions, and exposed to the sun's rays, the raised patterns are given in beautiful relief in a lighter tint of the same color as the ground.

Fine Cherries.—We have been favored with a taste of some beautiful cherries, (seven in number,) large, plump, small stone, and well-flavored, from a young tree belonging to Mr. R. Hayes, of Paterson, N. J. They grew in two bunches, and were its entire crop. When that tree grows larger, we should admire to refresh ourself under its shade.

Umbrellas.—*Calkins & Darrow*, 42 Maiden Lane, have a very large assortment of umbrellas and parasols, and the reputation of their work is not inferior to that of any establishment in the city. Their prices are reasonable.

New Patents.—We have failed to receive some engravings which we expected to publish in this number. Our next issue shall compensate for the limited amount of such articles in this month's number.

NEW BOOKS.

St. Petersburg; its People, their Character and Institutions. By Edward Jermann. A. S. Barnes & Co., New-York. 1855.

This very entertaining volume is translated from the German by Frederick Hardman. The author was long a resident in St. Petersburg, and he gives his personal experiences with all classes from the Czar to the peasant, and describes their condition, socially, politically, and morally. Its views are *pro* rather than *anti*-Russian. Read it by all means.

Principles of Agricultural Chemistry with Special Reference to the late Researches made in England. By Justus Von Liebig. John Wiley, New-York. 1855.

Dr. Liebig sustains his previous reputation in this new work, and brings his extensive observation and experiments to bear with great power on his theory in relation to mineral manures. It is translated by Prof. Gregory.

Which: the Right or the Left? New-York: Garrett & Co. 12mo, 536 pages.

This book is deservedly commended on all hands. It will be read extensively, and can not fail to do good. It is got up in excellent style.

The War in the East

Is the title of a *librette* by Bishop Southgate, and handsomely executed by Pudney & Russel, New-York, in which much information is given in a small space, in relation to the causes of the present war, and the relative position of all the parties concerned. We have read it with great interest, and commend it to all.

Blanche Dearwood: a Tale of Modern Life. Second edition. Bunce & Brother, New-York. 1855. 407 pages.

This book is commended by our brethren of the press, universally, and we cheerfully join in with them. A second edition is already issued—an approval of the public mind, rarely given so emphatically as in this instance. It is also handsomely printed and well bound.

Star Papers; or, Experiences of Art and Nature. By Henry Ward Beecher. New-York: J. C. Derby. 1855.

This is an after-dinner book, written in the shade of trees, etc, and is filled with the off hand thoughts and sentiments of the author, clothed in all the strength and exuberance of figure and fancy for which he is so distinguished. It is a printed form of the author. There is much in it that will please every intelligent reader, and some that many will disapprove.

We had intended to notice some capital books recently issued by J. P. Jewett & Co, Boston, but are obliged to defer them to a future opportunity.

List of Patents Issued

FROM MAY 1, 1855, TO JUNE 5, 1855.

Philip Bacon, Simsbury, Conn., improved tape fuze.

Geo. W. Brown, Galesburg, Ill., improvement in seed planters.

Alex. C. Blount, Mount Pleasant, Ala., improvement in preparing turpentine for distillation.

Jno. T. Bruen, New-York, improvement in stone and marble saws.

Dexter H. Chamberlain, West-Roxbury, Mass., improvement in lamps for burning fluid.

Robert Crichton, Buchanan, Pa., improvement in machines for making bolts.

Thos. Daugherty, Erie, Pa., improvement in boot crimps.

William Fowler, New-York, for faucet.

D. H. Fox and John Fink, Reading, Pa., improvement on railroad car ventilators.

Benjamin Hardinge, New-York, improvement in apparatus for dissolving silica.

Benjamin Hardinge, New-York, improvement in facing beds for grinding artificial granite, etc.

Simon Ingersoll, Greenwich, Conn., machine for sawing or felling trees.

A. Lempeke, Pleasant Mount, Pa., mode of checking wind mills.

Henry Link, Little Falls, improved propeller.

T. N. Lupton, Winchester, Va., improvement in grain harvesters

J. H. Manney, Rockford, Ill., improvement in grain and grass harvester.

Henry P. Odiorne, Philadelphia, Pa., improvement in guides for hemming cording.

Wm. Paule, Alexandria, improvement in ventilating railroad cars.

Lyman E Payne, Yazoo City, improvement in window sashes.

Gilbert Richards, Cunningham, Mass., improvement in spark arresters.

Ezra Ripley, Troy, balance-gate faucet.

A. W. Roberts, Hartford, Conn., nozzle for hose pipes.

M. M. and J. C. Rhodes, Taunton, Mass., machine for leathering tacks.

C. H. Rhode, N. Y., improvement in sash supporter.

Josiah J. Sherman, Albany, improvement in processes for preparing liquids for aiding digestion.

Thos. J. Sloan. New-York, improvement in apparatus for regulating supply of water to steam boilers.

Jno. Stowell, Charlestown, Mass., improvement in fire-arms.

Andrew J. Suffern, Suffern, improved machine for rolling railroad cars,

Eden C. Tavener and Oscar Nesmith, Hamilton, Va., improvement in ploughs.

Grant B. Turner, Cuyahoga Falls, O., improvement in smut machines.

Joel Webster, Brooklyn, improvement in silvering looking-glasses.

Henry Whitney, Jr., Cambridge, Mass., improved inkstand.

Andrew W. Wilson, Piqua, O., shingle machine.

Francis A. Wolff, Ripley, Miss., method of sawing a log by its own weight.

George B. Woodruff and James N. Palmer, New-Haven, Conn., improvement in gas regulators.

Wm. H. Zahn, New-York, assignor to Frederick Renter, same place, improvement in plaiting and twisting cord.

Hendrick V. Duryea, Oswego. assignor to "The Oswego River Starch Company," improvement in apparatus for manufacturing starch.

Thomas Hooker and Wm. D. Beaumont, New-Orleans, assignors to Alfred A. Pray, Nathaniel M. Harris, E. C. Lamoyne, James R. Jennings, George E. Kirk, and Lawrence A. Kirk, all of same place, improvement in artificial fuel,

John Taggart, Roxbury, assignor to himself and Nehemiah Hunt, Boston, Mass., machine for sawing wedges or shingles.

John W. Adams, New-York, improvement in metallic circular plate springs.

David S. Barber, Almond Thompson, and De Algeroy Thompson, Pittsfield, Vt., improvement in sleighs.

Job R. Barry, Philadelphia, improved ventilating and cooling apparatus.

Francis Bowman, Somerville, Mass., improvement in rosin stills.

Henry E. Canfield, New-York, improvement in double-acting spring hinges.

Handel S. Chapin, Glover, Vt., improvement in window sash fixtures.

Chas. T. Hester, New-York; improvement in connecting clamps for the plates of galvanic batteries.

John Chilcott and James Scungeour, Brooklyn, improvement in sewing machines.

Jacob A. Conover, New-York, machine for splitting wood.

Henry W. Dickinson, Hartford, Conn., improvement in cording guide for sewing machines.

George Dixon, Lafayette, Ind., velocitrait lubricator.

Ezra Fahrney, Mount Morris, Ill., improved hommony machine.

Francis P. Hart, Chandlersville, Pa., gauge for slitting lumber.

'Lorton Holliday, Rogersville, N. Y., mitre and beveling machine

W. H. Howard, Philadelphia, improvement in condensers for fibrous materials.

Thos. J. Knapp, Philadelphia, adjustable tenoning tool.

David Mathew, Philadelphia, improvement in spark arresters.

Purches Miles, Hartford, improvement in curtain fixtures.

A. H. Morrel, Marlin, Texas, improvement in cotton seed planters.

Ebenezer W. Nichols, Worcester, mode of securing brace-bits in their sockets.

Jno. H., James M., and H. Q. Thompson, Holderness, N. H., improved machine for polishing the soles of boots and shoes.

Alexander H. Niles, Georgetown, N. Y., improvement in carriages.

Francis Peabody, Salem, Mass., method for regulating windmills.

Jno. M. Perkins, New-York, improved mode of attaching hubs to axles.

Geo. W. Phipps, Philadelphia, improvement in window shutters.

Jno. K. Root, Hartford, improved slide lathes.

S. J. Russel, Chicago, hot air furnace.

James H. Stimson, Baltimore, improvement in butter coolers.

Wm. McK. Thornton, Pottsville, improvement in machine for creasing the edges of leather straps.

Jeremiah C. Tilton, Sanbornton Bridge, N. H., improvement in temples for looms.

Leonard Tilton, New-York, device for adjusting planing machinery.

Benj. B. Webster, Boston, improvement in spring curtain rollers.

David Weiser, Milwaukee, improved composition for filling in fire-proof safes.

Robert Wicks, New-York, improved furnace grate-bar.

Robert J. Marcher, Bloomington Grove, N. Y., assignee of J. S Barber, Boston, Mass., machine for cutting irregular forms.

Henry Terry, Plymouth, Conn., assignee of John M. Beck, of same place, improvement in dressing sewing thread.

Samuel Huffman and C. D. May, assignees of Samuel Huffman, Charleston, Ill., improved mode of indicating the number of yea and nay balls, in machine for taking votes in legislative bodies.

Jno. Taggart and Julius S. Shailer, Roxbury, assignees of John Taggart, aforesaid, fluid metre.

Benjamin S. Nicholson, administrator of John F. Nicholson, deceased, late of Davidsonville, Md., improvement in grain harvesters.

Azel Woodworth 3d, of Boston, improvement in machinery for spinning.

M. G. Hubbard, New-York, improvement in springs for carriages.

Geo. B. Ambler, Trumbull, Conn., improvement in wooden saddle trees.

Lucius B. Bradly, Watertown, Conn., improved rat-trap.

Thomas G. Boone, Brooklyn, improvement in steam boilers.

Leonard Campbell, Columbus, Miss., improvement in cotton gins.

Lewis W. Colver, Louisville, improvement in seed planters.

Robert Cushman, Pawtucket, improvement in stop motion of knitting machines.

D. W Clark and H. Gray, Bridgeport, Conn., improvement in carriage wheels.

John Chase, Jr., Pequonock, Conn., improvement in brick presses.

Rufus K. Chandler, Richmond, improvement in wristbands of shirts.

Daniel Drawbaugh, Eberly Mills, Pa., stave machine.

Michael B. Dyott, Philadelphia, improved warm-air furnace.

Charles A. Durgin, New-York, improvement in sewing machines.

Wright Duryea, New-York, improvement in umbrellas.

Marcus D. Du Bois, Newburgh, improvements in valve gear for oscillating engines.

Henry Gross, Tiffin, Ohio, machine for cutting screws on bedstead rails.

Henry Gross, Tiffin, Ohio, improvement in fire-arms.

Jonathan Haines, Pekin, Ill., improvement in grain harvesters.

Chase B. Horton, Elmira, improvement of hullers of buckwheat.

J. W. Hoogland, of Jersey City, tree-nail machine.

M. G. Hubbard, New-York, improvement in carriage springs.

Isaac Krebs, Winchester, Va, improvement in whiffletrees.

A. B. Latta, Cincinnati, improved carriage for steam fire-engines.

Charles B. Loveless, Boston, improved air-heating cook stoves.

Henry B. Lum, Sandusky, improvement in farm gates.

David Mathew, Philadelphia, improvement in spark arresters.

Robert J. Marcher, Salisbury Mills, N. Y., tool for grooving mouldings.

Jacob Marshall, Reading, improvement in lubricating compounds.

Jason C. Osgood, Troy, N. Y., improvement in submarine excavating machines.

Henry Pearce, Cincinnati, improvement in cordage machinery.

J Reymen, Dubuque, improvement in fences.

Thos. F. Rowland, Jas. Stephens, and Wm. H. Mason, Brooklyn, improved apparatus for drying grain.

T. J. W. Robertson, New-York, improvement in sewing machines

Edgar M. Stevens and Jos. B. Crosby, Boston, and Jos. W. Pearson, Winchester, Mass., improvement in seed planters.

John Tucker, Norway, Me., improvement in ox yokes.

Geo. Turner, Edinborough, Pa., mandrel for cutting tapering sticks.

John Tyler, West-Lebanon, N. H., curbs for water wheels.

Jonathan Whipple, Jr, Milford, Mass., improved self-acting nipper block.

Leroy S. White, Chicopee, and Lewis White, Hartford, Conn., improvement in telegraphic key apparatus.

Caleb Winegar, Union Springs, N. Y., method of closing and opening gates, etc.

John H. Wygant, Hackensack, N. J., improvement in spikes.

Linus Yale, Newport, N. Y., improvement in bank locks.

Jonas B. Aiken, Franklin, N. H., assignor to Jonas B. Aiken and Herrick Aiken, Franklin, aforesaid, improvement in knitting machines.

J. S. Barden, New-Haven, assignor to Oliver Snow, and G. B. Farnam, Meuden, Conn., water metre.

F. S. Coburn, Ipswich, assignor to Ruggles, Nourse, Mason & Co., Worcester, Mass., improvement in screw wrenches.

Abraham Gessner, Williamsburgh, assignor, through others, to the "North American Kerosene Gas Light Company," improvement in burning fluids.

Lucien E. Hicks, Boston, assignor to himself and Geo. N. Davis, Boston, aforesaid, improvement in hose couplings.

Joseph Bond, Jr., Philadelphia, improvement in sewing machines.

Thomas Arnold, Mobile, improvement in invalid bedsteads.

John Avery, Lowell, Mass., improvement in shuttle motion of looms.

Charles F. Brown, Warren, R. I., improvement in cartridges.

Samuel W. Brown, Lowell, improvement in gas regulators.

E. Daniels, New-York, improvement in invalid bedsteads.

E. W. Goodale, Clinton, Mass., improved machine for making paper bags.

John Henderson, Horseheads, improvement in hub and axle fastenings.

Wm. W. Hubbard and David Mathew, Philadelphia, improvement in vapor engines.

Thos. Foster Thornton, Buffalo, assignor to George A. Prince and Thomas Stephenson, Buffalo, aforesaid, improved swell for melodeons.

Homer Holland, Westfield, Mass., improvement in processes for treating auriferous and argentiferous sulphurets.

Dean S Howard, Lyonsdale, N.Y., water wheel.

Joseph Hollely, Brooklyn, fluid faucet.

Edward G. Hyde, Camptown, N. J., improvement in the construction of ear trumpets.

John N. King, Murray, N. Y., improvement in swing bridges.

T. J. Kindleberger, Springfield, O., improvement in cider mills

Gabriel Leverich, Wellsburgh, N. Y., apparatus for paging books.

William Landsdell, Memphis, improvement in buoyant propellers.

George W. La Baw. Jersey City, mitre machine.

William Maurer, New-York, improvement in door locks.

Thos. S. Minness, Meadville, Penn., improvement in seed planters.

Henry Mellish, Walpole, improved shoe for grain mills.

Erasmus A. Pond, Rutland, Vt., improvement in pill-making machines.

Silas S. Putnam, Boston, improvement in forging machines.

Francis Peabody, Salem, improved grass harvester.

E. Truman Prentiss, Philadelphia, improvement in lubricating compounds.

Henry A. Rosenthal, New-York, improvement in uterine supporters.

David Stoddard, Cincinnati, improvement in cut-off valves.

Jacob C. Schlough, Easton, Pa., improvement in grate bars for furnaces.

Webster Shibbles, Thomaston, Me., assignor to himself and Edward O'Brien, of same place, improvement for reefing topsails.

Isaac M. Singer, New-York, improvement in sewing machines.

Daniel W. Snell, Woonsocket, improvement in looms.

Alfred B Seymour, Claverack, N. Y., improvement in machines for helically creasing sheet metal pipes.

Richard A. Stratton, Philadelphia, improvement in chairs for dentists' use.

Chapin Street, Barre Centre, improvement in grain drills.

Francis Fitzpatrick, Cincinnati, improvement in straw cutters.

J. B. Terry, Hartford, improvement in pin-sticking machines.

Harvey Webster, and Alonzo Webster, Montpelier, improvement in whiffletrees.

Wm. D. Wilson, Richmond, Va., improved corn grinder and crusher.

Milton D Whipple, Charlestown, Mass., improvement in preparing wood for paper pulp.

E. D. Williams, Wilmington, Del., improvement in vehicles.

Courtland Wilson, and Wm. Moore, Jr, Yardleyville, Pa., improvement in mowing machines.

Joseph Welsh, Philadelphia, improvement in looms.

Sigismund Beer, New-York, assignor to Lewis Feuchtwanger and Sigismund Beer, New-York, aforesaid, improvement in de-vulcanizing India rubber.

Addison Capron, of Attleboro', assignor to himself, Jos. S. Dennis, Somerville, and Hervey M Richards, Attleboro', improvement in sewing machines.

Alfred Swingle, Boston, assignor to Elmer Townsend, Boston, aforesaid, improvements in hand pegging machines.

Lucien E. Hicks, Boston, assignor to himself and Hiram D. Hall, Beverly, improvement in pads for hernial trusses.

Francis Walle, Bethlehem, Pa., machine for making paper bags.

Abraham Gesner, Williamsburgh, assignor to "the North American Kerosene Gas Light Co," improvement in burning fluid compounds.

Leander R. Streeter, Lowell, assignor to himself and Ira Leonard, of same place, improvement in amalgamating the precious metals.

James Albro, Elizabethtown, N. J., for improvement in registering blocks for printing oil cloths.

Lucien A. Butts, Cuba, N. Y., for improvement in seed planters.

Daniel Blocher and Geo. M. Blocher, Cumberland, for improvement in burning brick.

Ernest Bahr, Rochester, Ind, for improved ship ventilator.

Thomas Champion, Washington, for improvement in feeding water to steam boilers.

P. J. Coogan, Charleston, for improved arrangement of drains for sewers.

Chas. H. Dana, West-Lebanon, N. H., for improvement in seed-planters.

Lewis W. Clover, Louisville, for improvement in washing machines.

William H. Degges, Washington, improvement in the soak pits of brick machines.

William H. Degges, Washington, for improvement in brick machines.

Andrew Dietz and John G. Dunham, Raritan, N. J., for improvement in reaping and mowing machines.

Thomas Estlack, of Philadelphia, for improved mode of securing washboards to walls.

William Fisher, Philadelphia, for method of composing music.

Franklin J. French, Whittingham, Vt., for improvement in boot jacks.

Luther Hill, Stoneham, Mass., for improved machine for skiving boot and shoe counters.

M. G. Hubbard, New-York, for improvement in grain and grass harvesters.

Lansing E. Hopkins, Brooklyn, for improvement in the process of manufacturing hats.

William R. Jackson, Baltimore, for improvement in floating cabins for steam and other vessels.

Edwin A. Jeffrey, Corning, N. Y., for double-acting pump.

Harrison Loring, Boston, for improvement in apparatus for bleaching rags.

William S. Loughborough, Rochester, for improvement in fastenings for carpets.

Samuel J. M'Dougall, Brooklyn, for improvement in hydro-carbon vapor apparatus.

Daniel Minthorn, New-York, for improved brace for supporting garments.

Silvanus Perkins, Pittsburgh, improvement in wagon wheels.

Andrew Rankin, Newark, for improvement in the manufacture of hats.

Samuel J. H. Smith, Boston, improved portfolio.

George S. G. Spence, Boston, improved furnace for warming buildings.

Joseph D. Spiller, Concord, bench rest.

Harlon H. Thayer, Sandwich, improvement in machine for kneading clay.

O. B. Tomlinson, Athens, Pa., for improvement in the manufacture of ornamental felt cloth.

Henry Webster, Beetown, Wis., for improvement in steam-engine regulators.

Hiram Wheeler, Boston, improvement in gas regulators,

Wm. C. Whipple and Wm. C. Bowe, Westville, Ct. for improved melodeon.

Wm. Whiteside and John Shin, Philadelphia, for improvement in looms

George W. Zeigler, Tiffin, Ohio, for improvement in boot coupling machines.

Wm. Darker, Jr., of West Philadelphia, assignor to J. B. Thompson, Philadelphia, for improvement in ring-spinning frames.

Anthony Pollak, Philadelphia, improvement in wrought-iron beam and girders.

HARVARD COLLEGE
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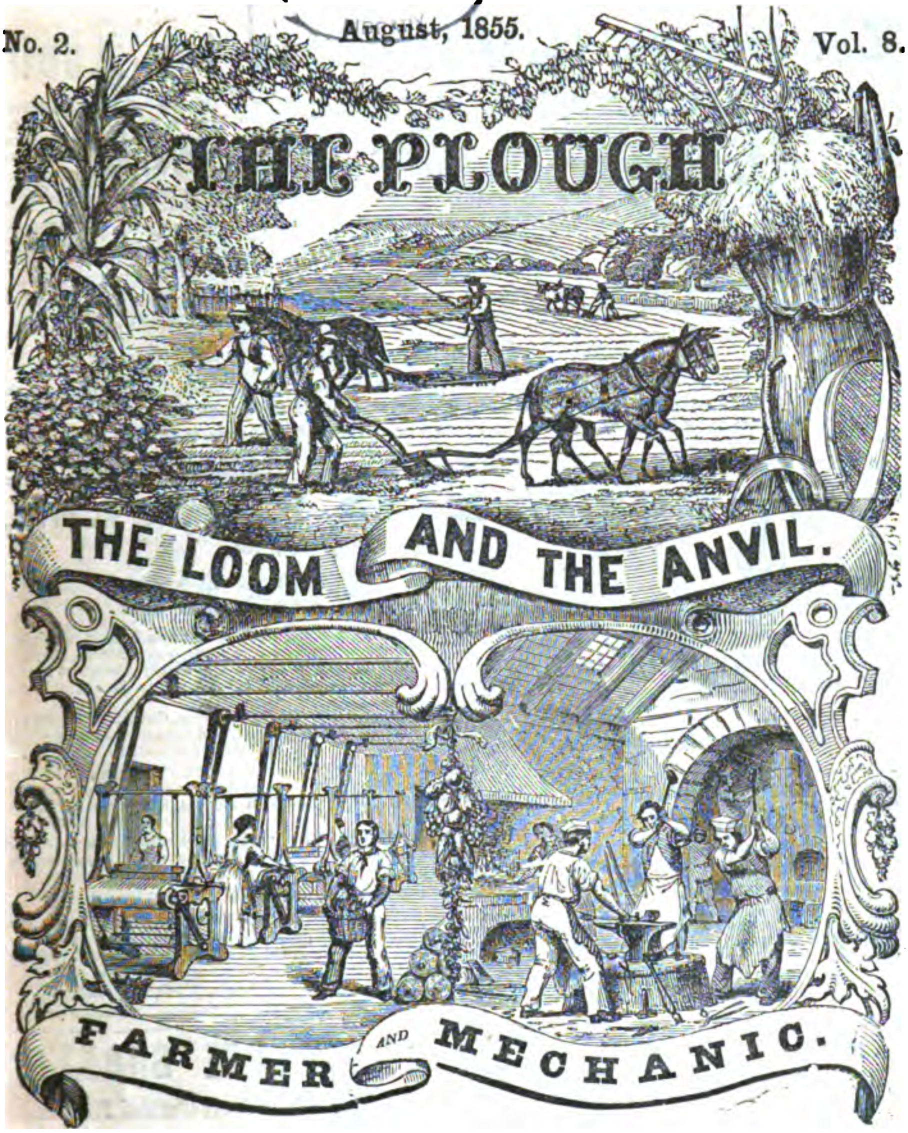
No. 2. August, 1855. Vol. 8.

THE PLOUGH, THE LOOM AND THE ANVIL.

FARMER AND MECHANIC.



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The Plough, the Loom, and the Anvil,

Is devoted to Scientific and Practical Agriculture, Manufactures, Mechanics, with Designs of Farm Buildings, Cottages, &c.; the best Cultivation of Fruits and Plants; the proper care of Cattle, Horses, Sheep, Hogs, Poultry, Bees, &c. It will point out, also, the true policy to be pursued for the encouragement of American industry, without which there can be no secure foundation for American independence. It is issued MONTHLY, each number containing Sixty-four pages of reading matter, with frequent Illustrations, Engravings, &c., at the following

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HURD'S HAIR RESTORER,

FOR PRODUCING HAIR ON

BALD HEADS.

This Preparation has never failed to produce a new growth of Hair on Bald Heads, when used according to directions. It is designed expressly for the purpose, whereas, nearly, if not all the various preparations advertised for that purpose are, in reality, designed merely for the toilet, and are composed of oils, alcohol, &c., injurious rather than beneficial to the scalp.

Poquetannock, Conn., Feb. 9, 1855.

"This is to certify that I have been using Hurd's Hair Restorer about three months, and now, where my head was bald, it is covered with a new growth of hair." Capt. GEO. G. BENJAMINS.

Poquetannock, Conn., Feb. 14, 1855.

"This is to certify that I have been using Hurd's Hair Restorer about three months, and where my head was entirely bald, and had been about twenty years, it is covered with a new growth of hair, at least three inches in length." ALICE ADAMS.

The *Petersburgh* (*Va.*) *Intelligencer* says of HURD'S HAIR RESTORER: "This preparation seems to be efficacious for the restoration of the hair upon bald heads. We have seen the testimony of persons well known to us, who have used the compound successfully, thereby corroborating the opinion of its restorative energy."

For a Superior Article for the Toilet use HURD'S GOLDEN GLOSS.

This preparation is highly perfumed, and gives to the hair a dark, soft, glossy, and lively appearance, which can not be obtained from any other article. It effectually cleanses the scalp, and keeps the head clean and healthy.

HURD'S HAIR RESTORER is sold at $1, and HURD'S GOLDEN GLOSS at 25 cents per bottle, by Druggists generally.

CHEMICAL MANUFACTURING CO., Proprietors,
293 Broadway, New-York.

FAIRBANKS' PLATFORM SCALES,

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VARIOUS MODIFICATIONS, AS

RAILROAD SCALES, HAY SCALES AND CATTLE SCALES,

WITH IRON LEVERS AND STEEL BEARINGS, FOR FARMERS' USE.

IRON SCALES &C. &C..

New-York State Agricultural Society,
State Agricultural Rooms, Albany, Feb. 20, 1854.

At the Show of the Society, held at Buffalo, in September last, a *Cattle-weighing Machine* was erected by Messrs. T. & B. Fairbanks & Co., of St. Johnsbury, Vt. The Scales of Messrs. Fairbanks were selected as most likely to give satisfaction to the exhibitors of fat cattle. The judges appointed on miscellaneous articles awarded the first premium of the Society for the machine which was erected by them,—and the judges on fat cattle, who superintended the weighing of all cattle exhibited, expressed their approbation of the great accuracy of the machine.

BENJ. P. JOHNSON, Cor. Secretary.

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EASTERN TRAVEL.

Eastern Railroad.—Trains leave Boston for the East, 7.30, 9, 10.30, 12, and P.M., 2.30, 5, and 5.45. Through to Portland, 7.30 A.M., 12 M., and 5 P. M.

From Portland to Boston, leave 5, 10.45 A.M., and 4.20 P. M.

The Plough, the Loom, and the Anvil.

Vol. VIII. AUGUST, 1855. No. 2.

GREAT TELEGRAPH ENTERPRISE.

The sciences are mutual commentators on each other. Every new discovery, in any department, tends to elucidate or correct previously-existing theories in some collateral science. So it is in the practical application of science or mechanics. Every step gained throws increased light over the horizon. The knowledge of forces, projectiles, etc., affects and modifies the forms and methods of promoting locomotion of merchandise and of persons. Improvements in this leads the way to railroads. These opened new trades, and greatly increased the traffic in merchandise already established. The telegraph is invented, and instantaneous communication is opened from the extremes of a continent, dispensing with much of the older forms of correspondence. But this is not the final result. There is no such thing as *final result* in scientific attainments, or in their practical applications. The next movement is, continents are united, and already there is electric communication between London and the Crimea. Even this is not enough. Now the great ocean must be crossed by these eloquent wires. Man not only says to the ocean, bear up for us our rich freights, and to the winds send them to distant countries, but it now says to the wind we need not your aid in this work. There is a power at our command, wrapt up and asleep in a cask of fresh water, far more serviceable than your fickle breezes. And today he is ready to say, even to the wide and pathless ocean, you can form no barrier to our constant and instantaneous communication with the other side of the flood. We can hear what is hourly transpiring in the old world, notwithstanding the thunder of your mighty roar. You cannot drown the small voice of the telegraph. But we are running wild. We pass at once to the simple narrative of what is done, or is doing, in the great enterprise.

For a year past notices have occasionally appeared in the papers of a company formed in this city to carry a telegraph across the ocean. But the project seemed so wild and visionary that few believed it would be seriously attempted. The design was vast and grand, no doubt, but it was impracticable. Many even doubted the existence of such a company. They thought it all a hoax, and others, when assured of the fact, shook their heads and uttered wise remarks on the transparent folly of sinking money to the bottom of the ocean. It was literally throwing it into the sea. We are at length enabled to remove all mystery from the matter, and to state on the best authority what plans have been formed, and how far they are advanced toward accomplishment. A little more than one year ago a few individuals formed the daring project of carrying into execution this dream of science—this scheme which sanguine spirits had hoped for, but few believed possible. Their first step was to obtain a charter from Newfoundland. For this purpose three of their number were dispatched to St. John's, where, after weeks of negotiation with the Government, they succeeded in obtaining from the Province an *exclusive* charter for fifty years to build a telegraph to or across the island or the waters adjacent thereto or any of its dependencies. As Labrador is one of these, this charter virtually gives them the whole range of the continent. Further to encourage the enterprise, the Government agreed to pay £5000 towards constructing a bridle-path across the islands, which was necessary for the use of the telegraph, and to guarantee the interest on £50,000 for twenty years, and also to give fifty square miles of land, to be selected anywhere on the island—all this on its completion to St. John's, to which were to be added fifty more square miles of land if it should be carried across the Atlantic.

They obtained also from Prince Edward's Island an exclusive charter for fifty years. This Province gave 1000 acres of land. At the same time, to complete their right of way, they purchased a charter which had been previously obtained in New-Brunswick, and have since obtained one from Canada, with full liberty to cross their territory at any point that should be necessary. They also made a valuable agreement with Prof. Morse for the use of his patents and all renewals. This gentleman, who is the highest authority on the subject in the world, was sanguine of the success of the enterprise, and soon became personally connected with it. The Company was formally organized in May, 1854, by the choice of Peter Cooper, Marshall O. Roberts, Cyrus W. Field, and Chandler White, Esqrs., as Directors. Peter Cooper was chosen President; Moses Taylor, Treasurer, and Professor Morse, Electrician. From these names it will be seen that the business is in the hands of men who, to say the least, are not generally regarded as visionary, but as those who look far ahead and are apt to carry through what they have once begun.

The Company immediately commenced operations. They at once purchased the steamer Victoria, and sent her to Newfoundland with an engineer and assistants. A road was to be cut across the whole extent of the island, four hundred miles, through a wilderness seldom trodden by man. In this work about six hundred men were employed the whole of the season. It now appeared that the Government of Newfoundland, while granting a charter most liberal and honorable to themselves, had yet acted wisely for the interests of their own Province. A new spring was given to industry, treasures were found which before were not known to exist. Last summer the Company employed three mineralogists to explore the country, who discovered two mines of coal, one of copper, one of lead, and also quarries of slate and alabaster, and very valuable traces of ship-timber. This will develop rapidly the trade of the island, which before has been confined almost wholly to its fisheries.

So far all went well. The work was begun and advancing successfully. Less than a hundred miles of submarine cable were needed to stretch across to Cape Breton, and when this was laid and the line completed to St. John's, there would be direct telegraphic communication east from New-York about twelve hundred miles. This certainly was a long stride toward Europe. But now came the great difficulty. They had reached the rocks of Newfoundland, but there before them was the mighty ocean, raging wildly around those cliffs, as untamed as when Columbus first crossed the sea. To advance into these deep waters was the next and the perilous step. Proposals had been received from a European company to unite with them in the enterprise, and in January last one of the directors sailed for England to complete the negotiations.

In this he was entirely successful. In London he formed a contract with the Transatlantic Telegraph Company, composed of English and French capitalists, whereby the latter engaged to construct and lay down, at their own expense and risk, a submarine cable extending from Ireland to St. John's, Newfoundland, and to have it completed on or before the 22d day of January, 1858. The two companies, European and American, each will own the line which it constructs, but their contract obliges them to operate in connection with each other, to the exclusion of all other lines, for the period of fifty years, which is the limit of the American company's charter.

At the same time, a favorable contract was made for the submarine cable to connect Newfoundland with Cape Breton. This will be seventy-four miles long, and is to be ready on the last day of this month, when it will be shipped direct to Newfoundland. The steamer Victoria sailed a few days since for St. John's, with Mr. Ellis, the chief engineer, and his assistants. The company confidentially expect to have telegraphic communication established between New-York and St. John's in the course of this summer. All the necessary harbor and wharf accommodations have been secured at that port for the steamers which are expected to call there on their trips between America and Europe. St. John's is about two days nearer to England than Halifax. We have therefore every reason to believe that in three months the old world and the new will be within a week's hail of each other—and that within three years the two hemispheres will be in instantaneous communication.

We are aware that some will read this with a smile of incredulity. All the contracts in the world will not convince them that such a work will ever be achieved. Though the bond be sealed, signed, and delivered, yet neither Englishmen nor Americans can do what is beyond all human power. To these evil prophets we may add a word to show that the enterprise is not so impossible as they are wont to believe. The first thing to be noted is the bed of the ocean along the track of the proposed route. Says Lieut. Maury: "There is at the bottom of the sea between Cape Race in Newfoundland and Cape Clear in Ireland, a remarkable steppe, which is already known as the Telegraphic plateau. The great circle distance between these two shore lines is 1600 miles, and the sea along this route is probably nowhere more than 10,000 feet deep." That is not too deep to be reached by the cable sunk in the waters, and yet deep enough to be out of the way of anchors and icebergs. This seems like a special provision of nature to favor this great work. A chain of uplands lies under the sea as if on purpose to bear up the chain of intelligence across the deep. On that broad plateau is to be laid this mighty coil—this serpent winding around the earth, and pressing it together in its folds. The bottom of the sea is found to be not sharp rock nor precipice, but soft, shelly sand, into which the telegraphic line may sink and become imbedded for ages.

Next as to the material employed. To speak of a *wire* would convey a false idea. For though there are several small copper wires, these are encased in gutta-percha, and around them is wound a coil of heavy wire, forming altogether a huge iron cable, strong enough to hold fast any ship-of-war in the world. We have at our office specimens of that used under the British Channel and under the Mediterranean. The cable purchased for the line from Cape Breton to Newfoundland weighs over five tons to the mile, and that to cross the Atlantic will be much stronger.

But the most triumphant proof that this thing is possible, is the fact that *it has been done.* A telegraph has been in operation four years from England to France. Others stretch to Belgium and Holland. The last steamer brought news that a line of 500 miles has just been laid under the Black Sea, by which the Crimea is brought into hourly communication with London. Another is now being laid from France to the Island of Sardinia, and thence across to Algeria. The man who has achieved the greatest of these triumphs is Mr. John W. Brett, of London. This gentleman is now interested in the Transatlantic Telegraph Company, and undertakes to belt the ocean. With a full knowledge of the immense labor and cost, and of all hazards, he still dares to promise to bind the Atlantic, as he has already bound the Mediterranean.

Nor is the difficulty greatly increased by the length of the line. Doubts have been expressed whether an electric current could be sent such a distance. It was said it would not go more than five or six hundred miles, and projects were devised for carrying a telegraph around by way of Greenland and Iceland. But these doubts are now set at rest by recent experiments of Prof. Faraday. He declares the thing perfectly practicable. The only drawback to his happiness in the discovery was that it would occupy an appreciable time in the passage. He seemed in this a little disappointed. When asked "how long it would take to pass from London to New-York?" he answered, "possibly one second." This is not quite as quick as we expected, but on the whole we think that will do!

MAGNIFICENT FARMING.

The following very interesting account of the large and excellent farm of John Sigerson & Brother, near St. Louis, is copied from the *Valley Farmer.* There are much larger farms in the Union, but none, perhaps, where there is so profitable a combination of diversified crops—and the enterprise and energy of the Sigersons are worthy of imitation.

The Sigerson farm is situated south of the River de Peres, in what is known as the Carondelet Common Fields, and consists of one thousand acres, all under fence and nearly all in cultivation. When the commencement was made there, about ten years ago, the whole tract was covered with a stout growth of black jack, hickory, hazel, etc. The Gravois runs through the entire tract, diagonally from south-east to north-west, affording abundance of water for stock. The ground is quite undulating, and on it are found numerous sink-holes through which the water drains off by subterranean passages in the limestone ledge which underlies the whole section into the Mississippi river. The soil is a rich, sandy loam, very deep, upon a clay sub-soil, and on being worked becomes very friable, and is easily pulverized. It is admirably adapted to the growth of fruit, and also, corn, wheat, potatoes—in fact everything cultivated in this region.

They have now an apple and peach orchard in bearing, of over 160 acres, embracing some 40,000 trees; they have 5,000 pear trees in bearing, besides nectarines, apricots, cherries, plums, quinces, etc., in great numbers. They have 200 acres of meadow, 60 acres of wheat, the finest we have seen this season; 60 acres of oats; 100 acres devoted to the nursery, in which they have this year planted about five bushels of apple seeds, and thirty bushels of peach stones; they have in it 50,000 budded peach trees, which will be ready for sale this fall; a larger quantity of apples; 300,000 grape cuttings; 30,000 evergreens, besides large quantities of quinces, pears, etc., as well as ornamental and shade trees, roses, dahlias, and every variety of hardy and exotic flower and shrub. They have twenty-five acres of strawberries, from which they have daily gathered from one to two hundred gallons of strawberries for two weeks past.

Besides supplying a large amount of food for the St. Louis market, the Messrs. Sigerson are intending this year to send large quantities to Chicago, Milwaukie, Galena and other cities north of us. By our railroad facilities this can now be accomplished so as to contribute vastly to the comfort of our northern neighbors, and be a source of profit to the enterprising men engaged in it. They expect to have from twenty to thirty thousand bushels of peaches to dispose of this season.

The force employed to carry on this vast concern, varies, according to the season, from thirty to fifty men. They have residing on their place about eight men who have families, to whom they furnish a comfortable home, a garden plat, fire-wood, pasturage for a cow, and pay them twenty dollars per month, the men boarding themselves. Single men are boarded by the proprietors, and paid from twelve to fifteen dollars per month.

We were much interested in the appearance of the giant growth of wheat in the midst of large trees; in the natural blue grass pasture; the nine miles of Osage Orange hedge, most of it a perfect barrier to all kinds of intruders; the magnificent evergreen hedge; the luxuriant clover, and above all, the neatness and order characterizing the whole concern, in which respect a vast improvement has been made since our previous visits. Nor ought we to omit to mention the valuable stock belonging to the farm. We particularly noticed four two year's old heifers brought from Kentucky—animals that cannot easily be beaten, also a pair of mares heavy with foal, which were really splendid animals. We noticed many other fine animals, which we cannot particularize.

The Sigersons are firm believers in the efficacy of deep ploughing and thorough cultivation, and act upon the principle that whatever is worth doing at all, is worth doing well; accordingly they put the plough down to its beam, and frequently put in the spade so as to pulverize fully two feet deep. The weeds are also, we notice, kept in subjection.

The success of this enterprise, so highly creditable to the proprietors, and of which our city and State have just cause to be pround, has demonstrated one thing from which the people of both the north and the south should receive instruction. It is often said by over-zealous persons at the north, who know but little about the actual condition of things in the Slave States, that white laborers cannot live in a slave community; that the tendency of the institution of slavery is to drive away all intelligent free laborers, etc., etc.; yet here is, in a Slave State, the largest farm in the Union, and one which is making more money for its owners than any other, operated entirely by free labor, there never having been a slave employed on the place, and a better, more respectable and intelligent set of men cannot be found employed in any place in the Union.

One thing more we would notice in concluding our remarks upon this establishment, and that is over the entrance gate to the place, is placed a sign to the effect that *no business visitors are admitted on the Sabbath.* The Scripture says, "They that honor me I will honor."

Mr. H. F. French gives the following account in the *New-England Farmer* of the **Farm of Mr. Darius Claggett**:

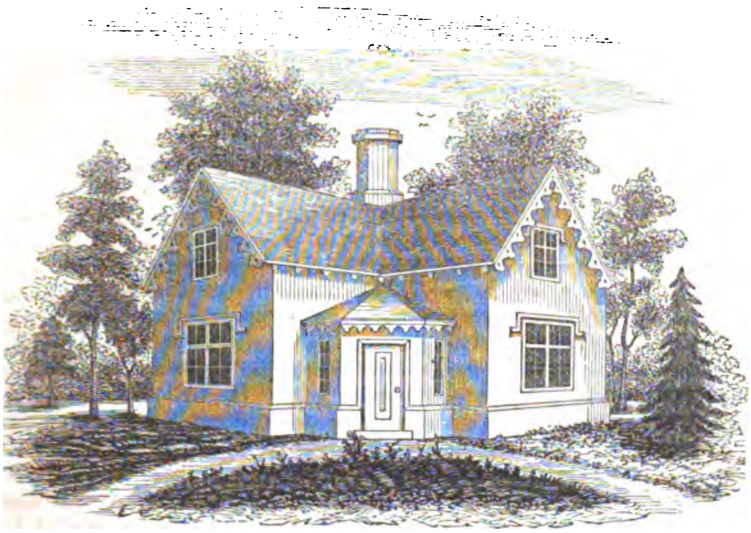
Good husbandry and energetic farming are not limited to New-England men. I yesterday accepted an invitation from a leading merchant of this city, Mr. **Darius Claggett**, to visit his farm on the Rockville plank-road, about five miles from Washington. His family reside on the farm in summer, and Mr. Claggett himself comes to his city business every day except Sunday and Friday.

I have rarely seen a place which gave so decided evidence of good taste and good judgment, and withal, of such preserving faith in our good mother earth, as this. Six years ago Mr. Claggett purchased three hundred acres of land, mostly covered with a small growth of yellow pine, entirely unimproved. In this short period of time he has cleared and put under the plough one hundred and fifty acres, a large part of which is covered with a choice variety of fruit trees of all descriptions that the climate will produce. His trees appear to be judiciously selected, carefully pruned and protected, and making a growth far beyond what I have ever seen at the North. He has already 2500 apple trees, 450 pears, 1600 peaches, 150 apricots, and as many plums.

The apple trees are set forty feet apart, and the land among them planted with wheat in drills, with bare strips of a few feet in width along the rows. They are making generally a better growth than we get in New-Hampshire. I saw upon them marks of our old enemy, the borer, and far worse marks of the seventeen-year-locusts of 1852. According to the theory, they will not be here again until 1869, by which time our friend will, it is hoped, have been paid by the fruit of his trees for all his labors. He said that when the locusts had possession of his trees, he could scrape from the body of a newly-set apple tree a pint of the insects at once! His pear trees, however, far excel his apples. Indeed, I have never seen so large a number of pears together that appeared so healthy, as we say at home, so *thrifty* as these. I saw no signs of the sap-blight or winter-killing, but the trees seemed full of life, and many of them were full of fruit already set. The peach orchard is already set for a large crop. In 1853, Mr. C. sent to the market 700 baskets of peaches, and his crop this year will probably far exceed that quantity. He has this year in grass, about 20 acres, in wheat about the same, in corn about 40 acres, and in potatoes about 12 acres, besides large tracts of vegetables and small fruits, among the rest two acres of strawberries. He manures all his crops with Peruvian guano, 300 pounds to the acre, ploughed in, and thinks this will insure him abundant crops.

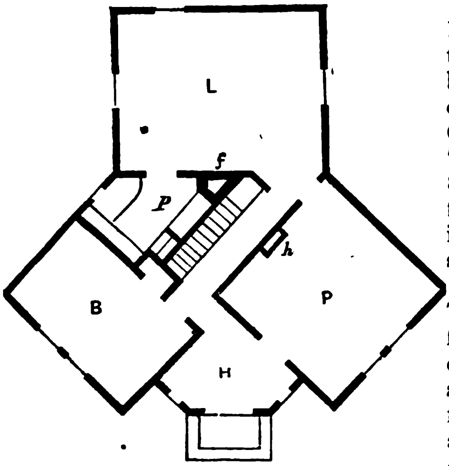
Mr. Claggett has been for thirty years in his counting-room, and never owned a farm before. Indeed he informed me that he never saw a plough run in his life until he saw his own, on this farm. His labor is performed by a foreman, a native of the district, and six laborers, mostly Irish, with two yoke of oxen and three horses, a force by the way, entirely insufficient to perform such mighty works on New-England soil. I did not see the foreman, but cannot help suspecting that he is a farmer of the right stamp. I have good faith in the success of any intelligent man who will read and inquire, and spend his money freely that he may produce satisfactory results in agriculture. Still it is a business not learned in a day, and I have no reason to doubt the correctness of our friend's remark, that "Farmer Claggett owes merchant Claggett a good deal of money,"

Such men, however, are public benefactors. They inspire others with faith in labor, and faith in the heritage which a good God has given us, and if they expend money in the experiments, they derive from them the rational satisfaction that they leave the earth better than they found it.



PLAN OF A FARM COTTAGE.

The rooms in this plan for a small farm-house are of the most common description, to wit: a parlor, a living-room or kitchen, a pantry, and a bed-room, on the first floor; and three bed-rooms, with closets, on the second. Although uncommon in its form and arrangement, this cottage is thought to be more than ordinarily convenient, as well as unique in expression.



GROUND PLAN.

H. hall or entrance; P, parlor: L, living-room or kitchen; B. bed-room: *P.* pantry, with shelves; *f*, principal chimney; *h*, parlor chimney.

In this design the parlor is 13½ feet square, inside measure; the kitchen, 13½ by 16½; the bed-room, which has a small closet, 13½ by 9; the pantry, 6½ by 8½; the hall or entrance, 7½ square; the passage, 2 feet 8 inches wide, and the stairs 2 feet 3 inches. The bed-rooms in the second story are of the same size as the three lower rooms, and directly over them. The space over the pantry affords room for two good-sized closets. The parlor chimney ascends only to the chamber floor, and a pipe runs from it across the passage to the main chimney. The rear gable is of the same height as the two front ones, but the roof is less steep, inasmuch as the back part is wider than the front parts. The wood-house should stand 20 feet in the rear of the building.

The cost of materials and labor vary so much in different locations that it seems needless to attempt giving an estimate of the expense. It will vary, however, from $500 to $800, depending upon style of finish, cost of material, etc., and is therefore within the means of all.—*Gen. Farmer.*

ENTOMOLOGY.

THE number of insects, worms, etc., which are either annoying to the person, or injurious to our crops, is very large. The former are the less important, a little skill only being necessary to protect us in a great measure from such annoyance; or if wounded, appliances are at hand to diminish or eradicate the disease they may produce. But with our fruits and vegetable crops of many kinds, the proper treatment in the way of prevention is absolutely essential. Yet this is a branch of science about which our farmers and mechanics and professional men alike are eminently ignorant. Many are acquainted with flowers, both wild and exotic, and cultivate fruits extensively, who know nothing of the animals or insects that infest and destroy them. Cut-worms, wire-worms, etc., eat off the young corn, or devour its tender leaf; the borer pierces your apple or peach-tree, or plum-tree; while the caterpillar comes in throngs and devours all before it. The curculio destroys the young fruit; green lice, or aphides, cover the tender branches of choice roses, geraniums, and other flowers, so that they wither and die. Nor will they suffer your shrubs, nor the leaves of your trees to grow and flourish, if they obtain an undisturbed possession.

We purpose, in this and other essays, to throw a little light upon this subject, and hope to give such illustrations of the more destructive species, and shall lead the laborer or amateur agriculturist to detect and know them, and apply such means for their destruction as are at hand.

First, let us describe the general classes in which these animals are arranged.

I. COLEOPTERA; or *Beetles*. These are insects with jaws, and two thick wing-covers meeting in a straight line on the top of the back, and two filmy wings, which are folded transversely. Their transformation is complete. Their larvæ,* called grubs, are generally provided with six true legs, and sometimes with a terminal prop leg. More rarely they are without legs. The pupæ have wings and legs distinct and unconfined.

Of this order many species are useful, as they live upon caterpillars, plant-lice, or other noxious insects. Such are the Water Lovers, Rove-beetles, Carrion-beetles, Skin-beetles, Bone-beetles, various kinds of Dung-beetles, etc., which act as scavengers. Stag-beetles, Many Bark-beetles, and Spring-beetles live under the bark or in the interior of decayed trees, and are therefore harmless, if not positively useful in hastening a process which is inevitable, and the better, of course, the more rapid.

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* Larvæ (singular *larva*) are insects in their first stage or infancy, formed directly from the egg. The word signifies a mask. It is applied to all insects that undergo a complete transformation, to all young and wingless grasshoppers, and to all young insects before the wings begin to appear.

A pupa is the second stage of insect life. Those that undergo a partial transformation retain their activity and their appetite for food, and grow and acquire the rudiments of wings. Others, at this age, entirely lose their larva form, and take no food, but remain at rest, in a deathlike torpor. This is the pupa state.

The pupæ from caterpillars are generally called chrysales or chrysalids, on account of their having shining spots upon them. Grubs, after their first transformation, are sometimes called nymphs.

In most young insects, or larvæ, the body consists of a head and a series of twelve rings or segments, the thorax not being distinctly separated from the hinder parts of the body or abdomen, as in the adult form.

II. Orthoptera. This order includes *Crickets, Cockroaches, Grasshoppers*, etc. They have jaws, two thick opaque upper wings, overlapping a little on the back, and two larger thin wings which are folded in plaits like a fan. Their transformation is partial. The larvæ and pupæ are active, but without wings. All of this order, except camel crickets, which prey on other insects, are injurious to our household goods or to vegetation.

III. Hemoptera. In this order are included *Bugs, Locusts, Plant-lice*, etc. These insects are provided with a horny beak for suction, four wings, the uppermost generally thick at the base, with thinner extremities, which lie flat and cross each other on the top of the back, or are of uniform thickness throughout, and slope at the sides like a roof. Their transformation is partial. The larvæ and pupæ are nearly like the adult insect, but without wings.

IV. Neuroptera; *Dragon flies, Lace Winged flies, Ant-lions, Day-flies, May-flies, White Ants*, etc. These are insects with jaws, four netted wings, of which the hinder are the largest, without stings or piercers. Their transformation is complete or partial. Larvæ and pupæ are various. Of this order, Dragon flies (Libelluladæ) prey upon gnats and mosquitoes; others devour aquatic insects.

V. Lepidoptera; *Butterflies and Moths.* These have a mouth with a spiral sucking tube, wings four-covered with branny scales. Transformation complete. The larvæ are caterpillars, and have six free legs, and from four to ten fleshy prop legs. Pupæ, with the cases of the wings and of the legs indistinct and soldered to the breast.

Some kinds of caterpillars are very troublesome in our houses, destroying woollens, furs, feathers, wax, etc., etc.; but most of them live on vegetable food, and are destructive to buds, flowers, leaves, stems, fruit, seeds, pith, and roots of plants.

VI. Hymenoptera; *Ants, Bees, Saw-flies, Wasps, etc.* This order consists of insects with jaws, wings 4-veined in most species, the hinder pair being shorter than the others, having a sting or piercer at the extremity of the abdomen. Their transformation is complete. The larvæ are mostly maggot-like or slug-like, but some are caterpillar-like. Their pupæ have legs and wings unconfined.

VII. Diptera; *Mosquitoes, Gnats, Flies, etc.* These insects have a horny or fleshy proboscis, two wings only, and two knobbed threads called balancers or poisers behind the wings. Their transformation is complete. The larvæ are maggots without feet, and with breathing-holes generally in the hinder extremity of the body. Pupæ mostly encased in the dried skin of the larvæ, sometimes, however, naked, in which case the wings and legs are visible, and are more or less unconfined.

Besides these seven orders, which are generally adopted by naturalists, are several smaller groups, not arranged in any order. There is not entire uniformity, however, among learned writers on this subject. The flea tribe was placed among the bugs by Fabricius, and forms the order Aptera of Leach, Siphonaptera of Latreille, and Aphaniptera of Kirby. They are destitute of wings, and have four little scales pressing close against the body. Their mouth is fitted for suction, and with lancet-like piercers for making punctures. They undergo a complete transformation. Their larvæ are worm-like and without feet. Their pupæ have their legs free. Besides these are many others, not generally classified in orders, of some of which we shall treat hereafter.

The number of species of insects is very large. Four thousand species of weevil have been scientifically described and named, but they are all arranged in 350 genera. Some have judged that there are six insects to every plant. Harris says that four to one is within bounds.

The following extract from the recent work of Dr. Emmons illustrates the great importance of a general knowledge of this subject:

"A thick foliage of a fine avenue of poplar was all at once attacked by an immense quantity of caterpillars of *Bombax dispar.* I thought of giving them the *calosoma sycophanta* for company; as, like them, it passes its life upon the trees, feeding upon the caterpillars which it meets, and even deposits its eggs in their nests, that its voracious progeny may procure nourishment more easily and in greater abundance. Well! this insect multiplied itself with a rapidity truly astonishing; and the caterpillars disappeared, without those who were witnesses to the destruction having the least idea of the causes which produced it. M. Boisgiraud then gives it as his opinion, that the neighborhood of the city of Toulouse is so little ravaged by the *Melolontha vulgaris* which is so destructive in other parts of France, because the *Carabus auratus* seizes and devours the *Melolontha* previous to the deposition of its eggs; and that it is more fond of these than of any part of the insect. You see, then, that it is indispensable to study the manners and habits of destructive insects, that their instinct and address may be successfully employed for the destruction of the species able to do us injury. Then in place of barbarously crushing the useful species which have the misfortune to be not always ornamented with the rich colors of the butterfly or the *Buprestis*, we will endeavor to protect them and propagate their race. We will find auxiliaries in them the more valuable, as they increase with our adversaries, and as they alone are able to rival the cunning of these ingenious enemies."

The *Melolontha* here spoken of is a destructive family, called *Melolonnadæ* or *Melolonthians.* Its popular name is the common *Cock-chaffer* of Europe. The female lays its eggs, a hundred or more in number, in the earth, at a depth of five inches or more, and then ascends, and, like most insects, soon perishes. The little white grubs hatch in fourteen days. They have six legs near the head, and a mouth provided with strong jaws. When at rest, they curl themselves in the form of a crescent. They subsist on tender roots of various plants, and often commit the most deplorable ravages. During the summer they live near the surface; but as winter approaches, they descend below the reach of frost, and remain torpid till spring. They then change their coats, and ascend to the surface for food. After three or four summers, they cease eating, penetrate about two feet into the earth, and by peculiar motions they form an oval cavity, line it with a glutinous substance, and, throwing off their skin, become pupæ. In this state the legs, wing-cases, and antennæ of the future beetle are visible through the transparent skin. In February this skin is rent, and in May the perfect beetle digs its way to the surface. These grubs are very destructive. They sometimes devour the roots of whole acres of grass, or of wheat or other grains. The May bugs, as they are called, pass the day among the trees, and at night fly about and, attracted by lights, enter houses, moving very irregularly, and hitting against objects that are in their way, and often fall to the ground. Hence the phrase, "as blind as a beetle."

Among the many species of the first order, (COLEOPTERA.)

The Scarabæidæ are distinguished by short moveable horns or antennæ, ending with a knob, the projecting ridge of the forehead extending more or less over the face like the visor of a cap, beneath which the antennæ are planted.

Areoda Lanigera, or woolly areoda, or Goldsmith Beetle. This is nine-tenths of an inch long, lemon-yellow above, glitters like burnished gold on the top of the head and thorax, under side of body copper colored and thickly covered with whitish wool. Legs brownish yellow, or brassy, shaded with green. Morning and evening after the middle of May, till the 20th of June, they fly about, with a humming rustling noise, among the trees, the young leaves of which they devour. Pear trees are specially subject to their attacks, though they do not spare the elm, poplar, oak, hickory, and other trees. They remain at rest during the day, secreted often between two or three leaves, which they draw together and confine by their claws. They cleave to the under side of the leaf.

When the tree is shaken they fall to the ground, without attempting to fly.

Our May beetle is of another species from the European. It is the *Phyllophaga quercina* of Knoch. It is a chestnut-brown, smooth, with fine punctures or dots. Each wing-case has two or three slightly elevated longitudinal lines. The breast is covered with a yellowish down. The knob of its antennæ contains only three leaf-like joints. Its average length is nine tenths of an inch.

The grub is a white worm, with a brownish head, and, when fully grown, is nearly as thick as the little finger.

A grub is frequently found under old dung-heaps, commonly called the muck-worm. This is the dung-beetle, and is called by Mr. Say, *Scarabœus relictus.*

The *Phyllophaga fraterna*, or leaf-eater, is smaller and more slender. The punctures are less distinct, and the three elevated lines are scarcely visible. Its length is thirteen twentieths of an inch. Its habits, like those of the preceding. It is seen in June and July.

The *Phyllophaga hirticula* is of a brown color, its punctures larger than in the preceding, and on each wing-cover are three longitudinal rows of short, yellowish hairs. Length, seven tenths of an inch. Seen in June and July.

Phyllophaga Georgicana, or Georgian Leaf-eater. This species is bay-brown, entirely covered on the upper side with very short yellowish grey hairs, its length seven-tenths of an inch.

Phyllophaga Pilosicollis (of Knoch) is a smaller chafer, ochre-yellow, with a very hairy thorax. It is often thrown out of the ground in early spring by the spade, but does not ascend voluntarily till the middle of May; length half an inch.

All these are found in nurseries, orchards, and gardens, and are injurious.

Omaloplia Vespertina (of Gyllenhal, and *Sericea* of Illiger,) attacks the leaves of the sweet-briar, on which they may be found in the evening, about the last of June, in greater numbers. They resemble May beetles in form, but are shorter, and smaller in size, and thicker in proportion to the length. The Vespertina is a bay-brown; wing-covers marked with many longitudinal shallow furrows, which with the thorax, are thickly punctured; three-tenths or four-tenths of an inch in length.

Omaloplia Sericea, or Silky Omalophia. A deep chestnut brown, irridescent or changeable, reflecting the colors of the rainbow. In other respect it resembles the preceding, in appearance and habits.

Pelidnota punctata, or spotted pelidnota. This is found on grape vines, both wild and cultivated, in July and August. They are oblong, ovate, about one inch long. Their wing-covers are tile-colored, or a dull brownish yellow, and having three black dots on each. The thorax is darker, with a black dot on each side. The body beneath, and the legs, are a deep bronze-green color.

The leaves of the grape-vine are their only food. They fly by day.

The only method of destroying them is to pick them off with the hand and crush them. Their larvæ live on rotten wood.

The natural enemies of the beetle, which materially check its ravages, are the badger, the weasel, the marten, skunk, bats, rats, dunghill fowls, night-hawks, and crows. The common jay devours them, feeding each of their young with fifteen or twenty every day, and devouring some fifty themselves, when fully grown.

The number of beetles may be materially diminished by shaking the trees every morning or evening. The morning is the best time, as they will not then attempt to fly. Sometimes two bushels have been collected on a sheet in a single experiment. They may be thrown into boiling water, and then fed to swine.

THE CENSUS OF CLINTON.

"The harmony of interests" among all trades, which we so constantly enforce, is obvious in the following statistics of this young but thriving community. Our readers will remember it as the location of the manufacturing establishments originated by the eminent inventor, E. B. Bigelow, Esq.

"The whole population of Clinton on the first of June last, was 3644. Of this number 1470 are males, and 2174 females. The nativities of the inhabitants are found to be as follows, viz.: 2283 are natives of the United States, and 1361 of other countries. Of the natives, Massachusetts furnishes 1582; New Hampshire, 236; Vermont, 153; Maine, 104; New-York, 63, and other States, 162. Of the foreigners, Ireland furnishes 966; Scotland, 107; England, 72; Germany, 69; British Provinces, 53; South America, 3, and Spain, 1. The following are the ages of the people, in periods:

"Under five years of age, 416; between five and ten, 314; ten to fifteen, 296; fifteen and twenty, 509; twenty and thirty, 1028; thirty and forty, 537; forty and fifty, 271; fifty and sixty, 159; sixty and seventy, 81; seventy and eighty, 26; eighty and ninety, 6; ninety and one hundred, 1.

"The above population live in 489 houses, and constitute 619 families."

In connection with the above, as illustrating the connection between intelligent industry and the fine arts, notice the following, found in the village paper of Clinton:

"Music on the Common.—We are informed that arrangements have been made for music on the common every Thursday evening, by the Clinton Brass Band. Should Thursday evening prove stormy, they will play on Friday evening, and if both are unpleasant, it will be omitted for the week. The arrangement goes into effect next week."

GATHERING AND PRESERVATION OF FRUITS.

This is a subject respecting which we have much to learn in this country; and considering the vast amount of capital invested in fruit-culture, and the prospective importance of the business in a commercial point of view, it becomes worthy of serious and immediate attention. How many of those who are in the possession of orchards and fruit gardens know exactly when even to *gather* fruits in order to secure their greatest possible amount of excellence? May we not safely say that three-fourths of nearly all our summer fruits are consumed in an immature state? The keeping of fruits in winter, and the packing for distant markets, are questions that concern deeply the extensive orchardists of this country. We have translated from the *Revue Horticole* the following observations on this subject, by Prof. Dubreil, formerly of Rouen and now of Paris. They contain many valuable hints and suggestions worthy of attentive perusal.—*Horticulturist.*

"The preservation of fruits is a question intimately connected with the fruit-garden. This should furnish during the entire year the same quantity of the best possible fruits. In order to do this, it is true we must plant an equal number of varieties ripening their fruits during each month of the year. But this will be insufficient unless we adopt a mode of preservation which will retard the ripening of fruit to mid-winter, spring, or even the following summer. The fruit-garden cannot give the results expected from it, if we are deprived of its products from February to June, when the earliest fruits begin to ripen. This question, then, has a certain importance, not only for those who gather and consume the fruit, but for those who deal in fruits and who, without proper modes of keeping, are exposed to great losses. As the mode of gathering has a certain influence on the preservation of fruit, we will first treat of that operation.

I. ON GATHERING.

"1st. Degree of Maturity.—Fruits should be gathered when they present a sufficient degree of maturity; and in this respect the different species of fruits require different treatment.

"*All the Stone Fruits*, the cherries excepted, should be taken from the tree three or four days before their absolute maturity.

"*The Kernal Fruits of Summer and Autumn* are gathered eight to twelve days before maturity.

"These fruits possess, then, the necessary elements to accomplish their maturition, which is nothing more than a chemical reäction independent in some measure of vital action. In thus separating them from the tree they are deprived of the sap from the roots, they elaborate more completely that which is contained in their tissue, the sugary principle is then less affected by water, and a higher flavor is therefore acquired. The time suitable for gathering is when the side next the sun commences to change from green to yellow.

"*The Cherries, Gooseberries and Raspberries* are only gathered after their perfect maturity; but they should not be allowed to pass this moment, as they immediately lose some of their qualities.

"*The Kernal Fruits which ripen only in Winter*, are gathered when they have accomplished their full development, and before vegetation has completely ceased—that is to say, from the end of September to the end of October, according to the variety, the earliness of the season, and climate. Experience has demonstrated that fruits left on the trees after their growth do not keep so well; they lose their sugar and perfume, because at this time the temperature is ordinarily too low for the new fluids which arrive in their tissue to be sufficiently elaborated. If, on the contrary, this epoch is anticipated, the fruits wither and do not attain maturity. It is equally necessary to gather the fruits from the same tree at different times—first, those placed on the lower parts of the tree; then, eight or ten days after those on the upper part, of which the growth is prolonged by the influence of the sap, which remains longer in this part of the tree. For the same reason the fruits of standard trees in the open ground are gathered later than those of espalier, and those of aged or languishing trees before those of young and vigorous ones. The precise moment for the gathering of each fruit is indicated by the facility with which it is detached from the tree when slightly lifted upwards.

"Various instruments under the name of 'Fruit Gatherers' have been invented to detach the fruits at the tops of the trees without the aid of ladders; but their employment is too slow, and the fruits are more or less bruised, and do not keep. When the fruits are gathered, they are deposited in a basket similar to that used by the cultivators of Montreuil, (fig. 1.) It is about two feet long, eighteen inches wide, and a foot deep, with a carpet on the bottom. The fruits are laid in one by one, and only in three rows or tiers; when too many are laid on the top of each other, the bottom ones are bruised. Each tier is separated by a quantity of leaves. If they are peaches, each one is enveloped in a leaf of the vine. The basket, being sufficiently full, is carried on the head into a spacious and airy place, where the fruits are deposited on leaves or dry moss; the table of the fruit-room can serve this purpose. There the summer and autumn fruits achieve their maturity, and are taken thence to be consumed. The peaches should be cleaned of the down which covers them, and which is disagreeable to the mouth.

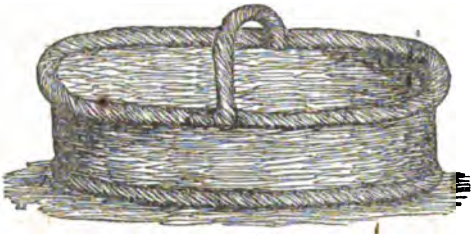


FIG. 1.

"*Grapes*, for immediate consumption or to be preserved fresh, are gathered only at perfect maturity; the longer they are left on the vine, the more sugary principle will be developed. Grapes from contre-espaliers are to be preferred for keeping to those from espaliers, as experience has demonstrated to the cultivators of Thomery that they keep better.

"*The Dry Fruits*, such as filberts, chestnuts, etc., are gathered at the moment when they detach themselves from the trees.

"In gathering fruits, a dry time and a cloudless sky should be chosen; and the middle of the day, from noon to four o'clock, is the best time to operate, as the fruits are charged with less humidity, the flavor is more concentrated, and those destined to be preserved keep better. This rule applies to all fruits.

"2d. MODE OF GATHERING.—The best method of gathering fruits consists in detaching them one by one with the hand. All pressure should be avoided as far as possible, as every bruise is followed by a brown spot, which gives place to and brings on the rapid decay of the entire fruit.

II. PRESERVATION.

"The preservation of fruits can only be applied to those which ripen during the winter, and which, detached from the tree before the first frosts, are placed under shelter from the cold to complete their maturity. The grape only is an exception to this. Summer and autumn fruits are also preserved, but only by the aid of certain proceedings, such as *drying*, and cooking more or less perfect, added to the exclusion of air or the addition of sugar, proceedings which result in discoloring the fruit and altering their flavor more or less sensibly. We cannot here describe the different methods.

"To preserve the fruits of winter, it is necessary, first, to prevent the action of frost, which disorganizes them completely; second, to retard the progress of their maturity in such a manner that a certain number of them will not ripen till toward the month of May in the following year. Experience has demonstrated that decomposition succeeds quite rapidly to complete maturity, and that it is impossible to prolong their preservation beyond this point.

"To obtain more or less perfectly the two-fold condition which we come to describe, depends upon the construction of the place in which the fruits are deposited, the fruit-room, and to the care which they receive.

"1st. Of the Fruit-room.—The fruit-room will give the more satisfactory results in proportion as it fills the six following conditions:

"1. *That its temperature be uniformly equal.* It is by changes of temperature, which expand or rarify the liquids contained in the fruits, that fermentation is excited and the interior organization destroyed—phenomena from which result maturity or ripeness.

"2. *That this temperature should be eight or ten degrees above freezing.* A higher temperature favors fermentation too much. If, on the contrary, it is lowered two or three degrees, this fermentation ceases, and maturation becomes stationary. Thus we see fruits preserved five or six months in an ice-house. In this case the end aimed at has been exceeded; for we are obliged, in taking them from the ice-house, to expose the fruits for a certain length of time to a higher temperature, in order to ripen them. The fruits thus preserved ripen afterwards with difficulty, and their quality is often found altered.

"3. *That the fruit-room be deprived of the action of the light.* This agent also accelerates maturation in facilitating the chemical reäctions which produce this phenomena.

"4. *That all the carbonic acid discharged from the fruits be retained in the atmosphere.* This gas, it appears from experiments of Couverchel, contributes powerfully to the preservation of fruits.

"5. *That the atmosphere be more dry than humid.* Humidity is also a condition necessary to fermentation; it diminishes the resistance of tissue in the fruits, and favors the effusion of its juices. It is, then, proper to avoid its accumulation in the fruit-room; but it must never be completely dry, for the fruits losing then, by evaporation, a considerable quantity of the aqueous fluids wither, dry up, and do not ripen.

"6. *That the fruits are so placed as to diminish as far as possible the pressure which they exercise upon each other.* This continued pressure determines the rupture of the vessels and cells toward the point of pressure, the different fluids are mingled, and this mixture promotes the chemical combinations which result in maturity.

"We propose to construct a fruit-room to fulfil these conditions, in the following manner:

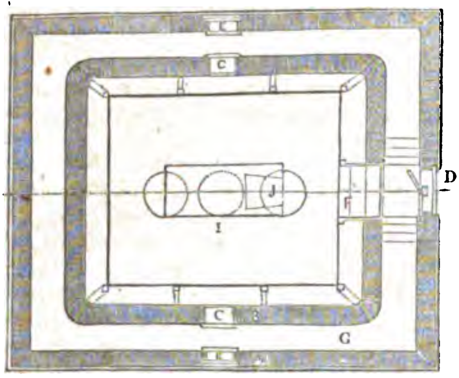


FIG. 2.

"We would choose a very dry soil, somewhat elevated, facing the north, and completely shaded from the sun by high plantations of evergreen trees. The dimensions are to be determined by the quantity of fruit to be preserved. That of which we give the plan (fig. 2) is 15 feet long in the inside, 12 feet wide, and 9 feet high. This will give place to 8,000 fruits, allowing each one to occupy 4 inches square. It is sunk 2½ feet in the ground; and if the soil is very dry, it may be 3 feet. This enables us the more easily to guard the atmosphere against the external temperature. To prevent surface water from accumulating in the surrounding soil and filtering into the fruit-room, the surface of the ground should descend from the walls, and these should be constructed of cement a foot above the soil.

"This fruit-room is enclosed by two walls, (A and B,) leaving between them an open space (G) about 10 inches wide. This stratum of air interposed between the two walls is the surest means of protecting the interior from the exterior temperature. The two walls are each 12 inches thick, constructed with a sort of mortar, or mud, made of clay and straw. This material is cheap, and on the whole a bad conductor of heat, and on this account preferable to common masonary. The walls are pierced with six openings—three in the inside and three on the outside walls—the first similar and exactly opposite to the last. The openings for the outside wall are—

"1. The double door (D); the outside door opens out; that of the interior inward, and it opens in two parts, like a shutter. When the frosts are severe, the space between the two doors should be filled with straw.

"2. Two windows, (E,) about 20 inches square, placed on each side, and opening at 18 inches from the soil, and closed by a double sash, of which the one closes out and the other in. The space between the two sashes should also be carefully filled with straw at the commencement of winter.

"The inside wall has a door (F) and two windows (C); but here the door is simple; the windows are also closed with two sashes, the outside one sliding in a groove, and the other opening out.

"As soon as the fruits are collected in the fruit-room, the joints and openings around the windows should be filled with paper, to prevent the air from the space between the walls entering the fruit-room. The four windows are only intended to admit air and light necessary to dry and ventilate the fruit-room before gathering in the fruit. We shall presently see that it is easy to get rid of the interior humidity produced by the presence of fruits, without employing currents of air.

"The ceiling, sustained by beams, is composed of a layer of moss, sustained by laths, and covered above and below with a layer of plaster; the whole being one foot thick. This mode of construction is necessary to exclude the influence of the exterior temperature.

"The roof is thatched a foot thick with straw, and the dormer may be used for storing fodder in; but the points of union between the dormer and the outer wall must be perfectly close.

"The floor is of oak. The walls, and even the ceiling, should have a covering of boards. These precautions serve to maintain an equal temperature, to exclude exterior moisture, and to completely separate the atmosphere of the fruit-room from that without.

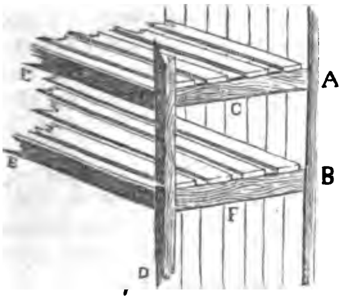


FIG. 3.

"All the interior walls, from 18 inches of the floor to the ceiling, are furnished with board shelves, 2 feet wide, placed 10 inches apart. To facilitate the arrangement of the fruit, the upper shelves (A, fig. 3) are made to slope downward in front, at an angle of 45 degrees; and this decreases as they come down, until the lower ones within four or five feet of of the floor are horizontal.

"The tables or shelves are all made of narrow strips about 4 inches wide; and to facilitate the circulation of air,, about an inch of space is left between each strip. The shelves are fixed to the wall by brackets, sustained in front by upright posts (D) placed 4½ feet form each other. The cross-pieces (E) attached to the uprights, support horizontal laths (F), or oblique ones (G.)

"In the center of the fruit-room we reserve a table (I, fig. 2,) 5 feet long and 2½ feet wide, separated from the shelves by a space of 3 feet. This table serves to receive the fruit temporarily, and has a narrow molding round the edge to keep it from falling off. All the shelves have similar borders.

"Such is the mode of construction we propose for a fruit-room, by the aid of which we can easily obtain many of the results which we have indicated as necessary—that is to say, it will enable us to maintain an equal temperature of 45 to 50 deg. Fahrenheit above zero, and that the action of the light is prevented. As for the other necessary conditions, we shall presently point out the means to secure them. In certain circumstances, much of the expense of a construction like the above might be avoided. If, for example, there was a subterranean cave or a grotto in a rock, a fruit-room might be established in either place, provided they be very dry. The interior fitting up would be the same.

"As the fruits are brought into the fruit-room, they are deposited on the table, which is covered with a thin layer of dry moss. There they are assorted; each variety is placed separate, and all unsound or bruised specimens are taken out. The sound fruits are left on the table two or three days, in order that they may part with some of their moisture. The shelves are then covered with a thin layer of dry moss or cotton, to prevent the fruits from being bruised by their own weight. We then proceed to wipe the fruits slightly with a piece of soft flannel, and arrange them in rows on the shelves leaving a space of a fourth of an inch between each, and keeping each variety separate, and placing similar varieties next each other.

"The fruit-room may not only serve for the preservation of kernal fruits, but for *grapes.* The Chasselas varieties in particular keep well in this way. We proceed with them as follows; Each bunch is cleared of all decaying or unsound berries, and fixed by the *point* on a small wire hook formed like an S (fig. 4). Thus attached it is less liable to decay, as the berries have a tendency to separate from each other. The bunches are then hung by the other end of the S hook around one or two hoops (fig. 5) placed one above the other, and suspended from the ceiling of the room, and rendered moveable by two small pullies.

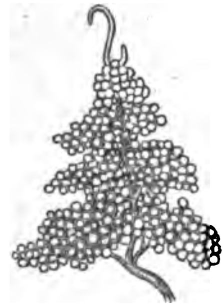


FIG. 4.

"If it be desired to keep in this way a large quantity of grapes, space may be economized by substituting for the hoops wooden frames (fig. 6), about 4 feet square. These frames are furnished with strips of rods, separated from each other by a space of 3 or 4 inches, and having on one side small pins to suspend the crotchets of grapes on. These frames are also fixed to the ceiling so as to occupy all the surface, and, like the hoops, to move up and down as may be necessary.

"The grape-growers of Thomery, who preserve a large quantity of grapes, content themselves with placing bunches on wire frames, on which they probably spread a thin layer of very dry fern.

"When all the fruits are thus arranged in the fruit-room, the doors and windows are left open during the day, unless in wet weather.

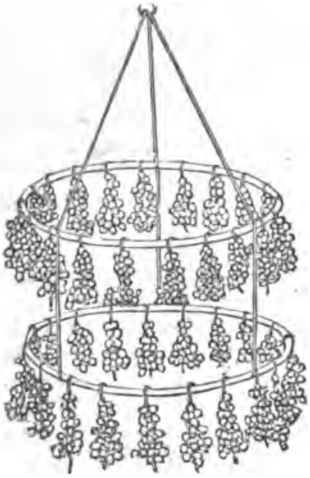


FIG. 5.

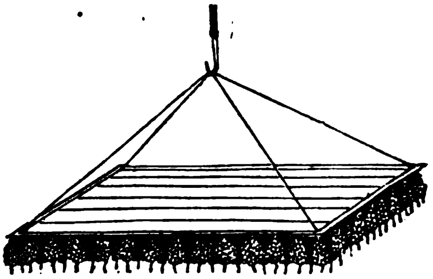


FIG. 6.

Eight days' exposure to the air in this way will be necessary to deprive the fruits of their surplus moisture. After that, a dry and cold time is chosen to close hermetically all the openings. The doors must be opened no more, except when necessary to enter.

"Until the present time we have employed no other means to remove moisture from the fruit-room but by creating currents of air more or less intense. This mode is attended with serious inconveniences for the preservation of fruit. In the first place, it produces an equilibrium of temperature between the atmosphere of the fruit-room and the exterior, and this change is very injurious to the fruits. In the second place, a glare of light is instantly admitted to the fruits, and this is no less injurious than the change of temperature. In fine, this vicious method should not be practiced unless the exterior temperature is not below the freezing point, and the weather is dry. In the winter, however, the weather is generally the reverse of this, and the fruits have to be abandoned to a destructive moisture.

"To escape this difficulty, we advise the use of *chloride of calcium.* This has the property of absorbing so great a quantity of moisture (about double its own weight) that it becomes liquified after being exposed for a certain time to a moist atmosphere. Fresh lime has the same property of absorbing moisture; but at the same time it absorbs the carbonic acid set free by the fruits, and it is important to save this gas, as it aids materially in preserving them.

"To employ *chloride of calcium,* a sort of wooden box should be constructed (A, fig. 7), lined with lead (F), about 18 inches wide and 4 inches deep. It is raised about 18 inches from the floor, on a small table (B) having one of its sides (C) about 1½ inches lower than the other. At the middle of the lowest side of the box a small mouth is fixed for the liquified chloride to run over into a stone jar (E) placed below it. The chloride is spread in the box in small porous particles, very dry, and about 3 inches thick; and if the quantity employed be entirely liquified before the fruit is consumed, a fresh supply may be added. About fifty pounds applied at three times is sufficient for a fruit-room such as is described above. The liquid which results from this operations should be carefully saved in the jar, and be kept covered until the following season. When the fruit-room is filled anew, the liquid may be put in a brass kettle and placed over the fire, where it will soon evaporate to perfect dryness, and may be employed again in the same manner as before.

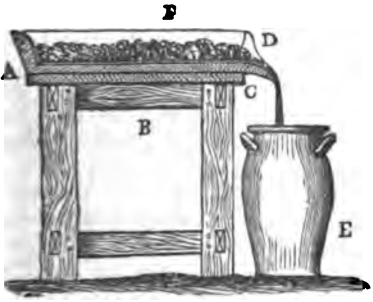


FIG. 7.

"Such are the cases necessary to fill the conditions we have indicated for the preservation of fruits. The fruit-room should be visited at least once in eight days, to remove the fruits which begin to decay, set apart those which are ripe, remove the decaying berries from the grapes, and renew the chloride of calcium."

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

FOREST TREES OF NICHOLS, TIOGA CO., N. Y., AND THEIR USE.

No. 1. *Ulmus Americana*—American Elm, White Elm. A large tree growing only in the vicinity of streams, and seldom found on hills, and from 60 to 90 feet in height, and 2 to over 3 feet in diameter, when old. The body uneven, frequently flat on two sides, while others are found with ridges projecting out on one side and a groove on the other; and frequently three or four such grooves and ridges. Bark on large trees deeply grooved and rough, of light gray color. Full of branches, that are often from 40 to 50 feet in length, with a regular taper from end to end. One tree near by me, with branches extending 35 or 40 feet in every direction, being the widest spreading tree that I have ever seen, with limbs bending over in a graceful manner on all sides. Frequently the body is covered with short, slim branches from the ground to the main branches, giving the tree at a distance an appearance of being covered with a green running vine; young sprouts frequently covered with pubescent leaves, smooth above, pubescent on the end or side, from 2 to 5 inches in length, and 2½ in breadth, with short stems, and from fifteen to 19 ribs on a side and doubly serrated, a notch being at every rib with a small one upon the large, frequently one side of the leaves longer than the other. Flowers appear before the leaves, and this year on the 24th of April, in great numbers, giving the tree a beautiful yellowish-green color in perfect clusters. Fruit, or seeds, about ⅜ of an inch in length an d¼ breadth, that is, the husk that contains the seed; edges of the husk covered on all sides with a fringe about one-sixteenth of an inch in length, and being of an oval shape, when ripe they are carried away by the wind. The seeds are about the length of a flax-seed and a third wider; seeds about all ripe, and are dropped by the first of June. I have two large spreading elms near the edge of my corn-field that have produced thousands of seeds, that have vegetated over a large part of the field. The first time hoeing the corn did not destroy them all, and on the 30th day of June they were two inches in length, and the largest had four leaves. This elm is useful in preserving the banks of streams; the larger roots are frequently 70 or 80 feet in length. It makes good firewood, being as good as hickory. It is more full of alkali than almost any other wood, as the soap-makers can well testify.

No. 2. *Ulmus Fulva*—Slippery Elm, Red Elm. The Slippery Elm is getting quite scarce in this vicinity, and is found only on the lowest land. This tree here is found from forty to fifty feet in height, and from 12 to 15 inches in diameter, the common observer would not distinguish it from the other species of elm. Perhaps the leaves are a trifle larger, and the young sprouts more pubescent. The inside bark contains valuable medical qualities, being mild mucilage, which is used for dysentery, coughs, colds, and externally as a poultice. Flowers in April. Fruit in May.

3. *Ulmus Racemosa*.—White Elm. With this elm I am not much acquainted, but like the other species, it grows on low land near streams, and often attains a large size. One tree in this vicinity I should judge to be 100 feet in height and two feet in diameter, and 70 feet without a branch. I think this species does not branch as much as the two preceding, or so low down. I have noticed a number near Rosebank, Canada West, that were over 100 feet high and 3 feet in diameter, and between 70 and 80 feet without a branch. The bark of this species is more deeply furrowed than the preceding. Flowers in April, and fruit in June. The wood is very tough, and is used here for making axe-handles and whip-stocks. R. Howell.

Nichols, July 3, 1855.

Black Knots in Plum Trees.—The following process has proved a cure for this troublesome disease in several experiments, and we commend it to our readers for a careful trial:

"Cut out the diseased wood as thoroughly as possible, and then apply spirits of turpentine. Cover the wound immediately after the application of the turpentine with grafting-wax."

THE GRITTINESS OF PEARS.

SOME of the very finest of our fruits are occasionally injured very materially by a hard gritty texture, either extending entirely or partially through its substance. We have known for some years that this could be to some extent controlled by a judicious process of ripening. A friend of ours at the Horticultural Rooms in Boston, of whose method of preserving fruits we have before alluded, is also successful in the prevention of the evil here described. But *his* efforts are directed to the specimens after they are plucked from the tree. In the last number of the *Florist* we find a process described which is well worthy of consideration. If it is as successful as is claimed for it, it will well pay the labor it requires. The article referred to is as follows:

The grittiness of pears is the chief circumstance which diminishes their value at the dessert. Some are more subject to the affection than others; but all are occasionally deteriorated by it. The proximate cause is known to consist in the deposit of hard matter in certain cells of the flesh, analogous in all respects to that which gives its bony texture to the stone of plums, cherries, etc. In all these cases, the tissue is originally soft and pulpy, and if it were to remain so, the whole of a plum would be as perfectly eatable a s aberry of the grape. But in stone fruits gritty matter is gradually deposited within the pulpy cells of the lining of the flesh, as constantly and naturally, as phosphate of lime in the gelatinous tissue of the bones of animals. In the pear, on the contrary, there is no special part set aside for the reception of the grit, which manifests itself accidentally here and there among the soft flesh, sometimes in large and sometimes in small quantities. In fact, in the pear, the grittiness may be regarded as an unnatural secretion, induced by unknown causes, while in stone fruits it is part and parcel of their nature.

We say induced by unknown causes, for we are not aware that any attempt has been made to show out of what circumstances the grittiness arises, or by what it is diminished or prevented. We are now, however, assured that it is entirely owing to the exposure of the pear fruit to too much cold. It appears that on the 16th of last November, Mr. A. Delaville, gardener at the Chateau de Fitz James, near Clermont, (Oise,) exhibited before the Imperial Horticultural Society of Paris, some St. Germain pears, a part of which were covered with spots and full of grittiness, while the others were remarkable for their beauty, and wholly exempt from grittiness. We are assured that both samples came from the same tree, and that the only difference consisted in the fine ones having been protected, while the others had been exposed to the weather without any shelter. In fact, M. Delaville is of opinion that the external spots and the internal grittiness were wholly caused by the cold rain which had fallen on the fruit during its growth, and had arrested the free circulation of sap.

With reference to this hypothesis, he remarks that the sorts which are most subject to spotting (*tavelage*) and grittiness, are those which have the finest skin, such as the St. Germain, Crasanne, Brown Beurre, and Winter Bonchretien. The effect of aspect also supports this view, it being notorious that the affections in question are most common with pears on open standards, or exposed to the east and south, the quarters whence (at Clermont) the coldest rains always come.

The manner in which M. Delaville protects his pears is thus described:—

As soon as the fruit is completely set, he encloses every cluster in a cornet of paper, fixed to the top of the stock by a piece of rush (bast.) This cornet must be large enough to cover all the upper part, so as to guard the fruit perfectly from the direct action of exterior agencies. If a tree is trained to a wall the same degree of protection is not necessary, because the wall affords a natural shelter on one side, but where pyramid or other openly-trained trees have to be dealt with, the cornet must be very wide, and the small end placed upwards, so as to leave nothing uncovered except the bottom of the fruit stalk.

These cornets remain in their places during the whole season, and are not disturbed till about a fortnight before gathering, at which time they are removed, in order to give the fruit color and to complete the ripening, "just as peaches and grapes are unleafed a short time before gathering them." M. Delaville concludes by assuring the public that by this simple method his whole crop of pears is very fine, instead of a third or more being unmarketable as is often the case.

The effect of these precautions should certainly be tried here, now that pears are getting into the condition when paper cornets are first applied.—*Gard. Chron.*

POOR FARMING EXPENSIVE.

The truth is, poor farming is an expensive business. The cost exceeds the income. If from a very low grade of farming, which must of course be unprofitable, we ascend to a better condition of the art, we shall come to a point where there is neither loss nor gain; the income equals the outgoes; the ends meet, as they say. And this, if we understand these matters, is the very condition in which nine-tenths of our farming now is.

The farmer of a hundred acres puts on his farm in his own labor, in the labor of his wife and his children, in taxes, insurance, etc., $500. And he takes off in some marketable produce or for home consumption, $500. "The ends meet;" and if there were no better way he need not complain; for he is working his way through the world as quietly and as easily as most men; for the development of high moral qualities he has the advantage of most others; and what is more, he has the best possible means of training his children to those habits of industry and frugality which more than conspire to make them good men and women and worthy citizens. Let him not, therefore, complain. But if there is a better way, let him fall into it. We do not believe that farming is necessarily limited to the operation of putting on $500 and taking off $500, and living by the operation, only because what is put on is mostly in the form of labor done by the family. If a farm will give $500, with the labor of one man, it will give a great deal more with the labor of two men; and the excess will more than balance the wages and board of the second. Instead of putting on $500 and taking off $500, the better way is to put on $700 and take off $900; and then to put on $900 and take off $1200. There is doubtless a limit beyond which the income could not be made to increase above the expenditures; but very few of us are in danger of going beyond the limit. There is much more danger of falling short of it. Our standard is too low. Men are afraid to trust their land, lest it should not pay them. It is the best paymaster in the world.—*The Farmer, by* J. A. Nash.

THE PROFIT OF FATTENING SWINE.

In the *Monthly Farmer* for April, 1854, there are statements over my signature relative to the profit of fattening swine in New-England, together with hints as to the proper mode of conducting the business; and in the following number for May, there is a shorter article, confirming the statements previously made. Since writing those articles, I have further investigated the subject, in order to prove the soundness or otherwise of the views then presented.

On the 21st of December, 1854, I bought four very lean shoats, weighing respectively, 63, 61, 60 and 58 lbs., or in all, 242 lbs., gross. live weight. They were placed in warm apartments, consisting of a pen for making compost, and an eating-room. The litter made by two horses was daily thrown into the compost pen; also, about every third week, a cord, or two loads of either muck or forest-mould was put into the pen; and clean straw was added, at suitable times, for bedding. The pigs were fed on meal made by grinding ears of corn, or on what is called corn and cob meal, and they were supplied with all the meal they would eat with a good appetite. Immediately after feeding them at a given time, the meal for the next feeding was placed in the bucket, and boiling water was added, and also after awhile the wash of the kitchen, the whole standing in a warm place till the time for feeding, and the meal becoming thoroughly soaked and very much swollen. Whenever a grist of ears of corn was to be carried to mill to be ground for the pigs, the same was accurately measured up in a basket, well known to hold the right quantity of ears, when even full, to make a bushel of shelled corn; and the pigs were charged with each grist at the time it was measured. Entire accuracy was aimed at in keeping the account with the pigs, and I know of no chance for a slip in the accounting.

The business was thus conducted till the 14th of the present month, when the pigs were sold to the butcher for eight cents per pound, dressed—he charging three dollars for slaughtering the four. Between the dates above named, the pigs consumed seventy-six bushels of corn on the ear, equal to thirty-eight bushels of shelled corn. During this time they manufactured eight cords, or sixteen loads of muck and mould into the first quality of compost, mingling the raw materials well with the horse manure and straw for bedding. They may be accounted with as follows:

825 lbs. of dressed pork, at 8 c. per lb.		$66 00
Deduct 76 bu. ears of corn, or 38 bu. corn consumed, at an average price of $1.25 per bu.	$47.50	
Deduct paid for slaughtering	3.00	
Deduct paid for pigs at outset, $3.00	12.00	62.50
Balance over market price of the corn		3.50
Add 8 cords or 16 loads of raw material manufactured into compost, worth a bu. of corn, or $1.25 per load	20.00	
From which, if you please, deduct the cost of supplying the material, say 50c. per load, which is rather high	8.00	12.00
Profit on four pigs, over and above market value of corn consumed		$15.00

With regard to the price at which the corn is charged to the pigs, I have to say that in January the thirty-eight bushels could have been bought for a dollar per bushel; and at less than a dollar and a quarter as late as March, though now corn is worth more than the price charged the pigs.

It will be found on calculation that these pigs gained some over fifteen pounds of net pork to each bushel of corn consumed; which argues pretty well for the mode of feeding, and for the business of converting corn into pork and compost.

Another year's practice and observation has not disclosed any thing material for me to deduct from the view formerly advanced as to the policy and profit of fattening swine. I still entertain entire confidence in the desireableness of the business, when conducted with system and propriety. Indeed, I have never seen the year in farming when I was not well paid for fattening pigs of a good breed, fairly reckoning their services as manufacturers of fertility for the land. In my judgment, it is sounder practice for the farmer thus to add to his means for making crops and keeping his lands in good heart, than by buying the fashionable concentrated fertilizers of the day, which too often merely stimulate the present crop, and leave the land no better than they found it.

Notwithstanding the great prejudice existing with many persons against the grinding and feeding of the cob with the corn, it is sufficient for my purpose to know, as I do by repeated trials, that corn and cob meal, properly ground and cooked, will make from twelve to sixteen pounds of net pork for each bushel of corn consumed. F. Holbrook,

in New-England Farmer.

Brattleboro', May 22, 1855.

Baldwin Apple.—To Medford belongs the introduction of the celebrated "Baldwin Apple." The first tree producing this delicious fruit, grew on the side-hill, within two rods of the former Woburn line, and about ten rods east of the present road which leads from West Medford to the ancient boundary of Woburn. It was on the farm occupied by Mr. Thompson, forty or fifty rods south of what used to be called the "black horse tavern." At the request of Governor Brooks, the writer made a visit to that tree in 1813 and climbed it. It was very old and partly decayed, but bore fruit abundantly. Around its trunk the woodpeckers had drilled as many as five or six circles of holes, not larger than a pea; and, from this most visible peculiarity, the apples were called "Woodpecker Apples." By degrees their name was shortened to *Peckers;* and, during my youth, they were seldom called by any other name. How they came by their present appellative is this: Young Baldwin, of Woburn, afterwards a colonel, and father of Laomi, was an intimate friend of young Thompson (afterwards Count Rumford;) and, as lovers of science, they asked permission of Professor Winthrop to attend his course of lectures in natural philosophy, at Harvard College. Twice each week, these twó thirsty and ambitious students walked from their homes in Woburn to bring back with them from Cambridge the teachings of the learned professor. One day, as they were passing by the "Woodpecker Tree," they stopped to contemplate the tempting red cheeks on those loaded boughs, and the result of such contemplation was the usual one—they took and tasted. Sudden and great surprise was the consequence. They instantly exclaimed to each other that it was the finest apple they ever tasted. Some years after this, Col. Baldwin took several scions to a public nursery, and from this circumstance they name the apple after him, which name it has since retained. In the gale of September, 1815, this parent tree fell; but very few parents have left behind so many flourishing and beloved children.—*History of Medford by Rev. Chas. Brooks.*

FARMERS BY ADOPTION.—We know a great many farmers in Grant county who acquired a training in other pursuits, yet succeed better than those who were raised on a farm. They soon acquire a mode of management that others do not attain in a life-time. We account for it in this way: they turn to farming because they have a love for it, and prosecute what they love best with most zeal; their superior business-tact acquired in other pursuits is applied to the farm with more advantage than to the business of their youth, and also with better profit. Another peculiarity about those who have but recently forsaken the business of their early training and went to the farm: they are all great readers of agricultural publications, they follow all new suggestions, forsaking the old, with as much pleasure as a dandy lays by his not quite thread-bare coat for a new one of the latest fashion, and in most cases with nine times the profit. Yes sir, the man who adopts farming at thirty, adopts also the farm book, the *Wisconsin Farmer*—and the *Herald*—*Grant County Herald.*

THE WHEAT CROP.

THIS crop is of very great value, second perhaps, in importance, only to that of corn and cotton. The origin of wheat is unknown. It was introduced into this country in its very infancy, and its cultivation has increased with the increase of the country, until the value of the annual growth is nearly or quite $100,000,000. Still, of late years the crop in New-England has materially diminished, and our journals have expended a vast amount of ink and paper, and our journalists of an *indefinite* amount of brains to explain this decrease. To us it seems a very simple affair. The climate, soil, etc., all the numerous circumstances and conditions which naturally affect this growth, resulting in a healthful or diseased condition of it, are such that it is not to be relied upon as a profitable crop. Hence it is not a favorite, but gives place to some of the numerous growths which are more desirable. Besides this, the land appropriated to this crop is not sufficiently cultivated. Though there are sections of the State of New-York where the crop succeeds very well, we are by no means sure that it would not be a gain in the end, if the culture of it through the State was entirely abandoned. That there are large sections in which such gains would result, we are very confident; and while vast regions of the west and north-west produce it so abundantly, we should not see cause for anxiety if the millions of bushels raised in the

Empire State should become thousands—hundreds. So, perhaps, in some other States. It has repeatedly been stated that there are large sections of country in which the crop does not pay its cost of production. Prof. Mapes, after a very careful examination of statistics, expressed such an opinion some years ago. In this we fully concur with him. So meagre is the crop in these sections, that through the whole extent of this country, the average crop has been estimated at scarcely more than ten or twelve bushels per acre; and this minimum is not a paying crop. But by the last census it appears that the entire crop was less than 100,500,000 bushels, while 11,000,000 of acres were devoted to its growth, and this gives us less than ten bushels per acre. How much reliance should be placed on these figures each one must judge for himself. It must be to some extent only the result of opinion rather than of accurate calculation. As to the produce per acre in several States, the census returns for 1850 contain the following:

Massachusetts grows 16 bushels; Florida, Pennsylvania, and Texas, 15 bushels; Iowa and Wisconsin, 14; Maryland and Vermont, 13; Indiana, New York, and Ohio, 12; Delaware, Illinois, Missouri, New-Hampshire, and New-Jersey, 11; Arkansas, Maine, and Michigan, 10; and all other States still less; Georgia yielding only five bushels per acre. Under the influence of these figures we are tempted to use even stronger language than we have used as to the cultivation of this crop. Good wheat land ought to produce from twenty-five to thirty-five bushels at least, and even then it would not pay as well as corn.

There are various kinds of wheat. Perhaps about a dozen varieties have each their own peculiar characteristics. Of these some are "spring wheat" and some "winter wheat," the latter being sown in the fall, and remaining in the ground through the winter. The spring wheat has a smaller grain, contains a greater proportion of gluten, and is of less value in the market. No two kinds, however, are equal in these respects. Some of our very abundant crops are peculiar; and yet their peculiarities are not understood. There is a vast difference between the Howard-st. flour and the Genesee flour. Let the house-wife accustomed to the latter only, make a batch of bread of the former, and it will be as tough as the strongest teeth would desire. The excessive amount of gluten requires more water and a thinner mass than some other varieties. But this only in passing. We shall recur to it again.

The following have been pronounced the best varieties of wheat by the highest authorities:

1. White Flint; 2. Improved White Flint; 3. White Provence; 4. Old Red Chaff; 5. Kentucky White Bearded; 6. Indiana Wheat; 7. Velvet Beard, or Crate Wheat; 8. Wheatland Red; 9. Golden Drop; 10. Mediterranean; 11 Blue Stem, etc. All these, and others that might be added, probably belong to one of four distinct and permanent species. Such, at least, is the opinion of Von Thaer, although he inadvertently, we suppose, calls them genera. The genus is Triticum, and the points of diversity noticed are the basis of *specific* distinction. Permanent diversities of the flower or blossom exclusively control the generic divisions of plants, while differences in leaf, stem, etc., etc., give rise to species.

Nor do the distinctions noted among the different kinds of wheat appear to be very satisfactory. If the winter wheat is sown in the spring these distinctions appear materially changed, as the plant in appearance approximates to the characteristics of spring wheat. *Possibly*, under a zealous perseverance, these experiments and these differences would entirely disappear. It is generally found that spring wheat will not endure through a winter. But we are not satisfied that a gradual training to exposure to cold would not discover that this even was not a feature utterly beyond control.

The excellence of wheat may be summed up in the following particulars:

Straw, medium size, strong, not peculiarly liable to the attacks of insects, not sensitive to frost.

Heads long, well filled; *grains*, large, solid, white, and rapidly germinating. *Chaff* not easily separated from the grain.

Good wheat weighs sixty pounds to a bushel; sometimes as high as sixty-six.

Of the varieties we have named, the first and third are remarkable for the weight of straw; the second for large berry; the first, third, seventh, and tenth are less liable to disease, or the attacks of insects; first, third, and seventh bear the frost well. Perhaps the first may be remarked as the most productive.

The constituents of wheat are as follows:

Starch, sugar, or gum,	50.60	per cent.
Gluten or albumen,	16.18	"
Water,	10.18	"
Woody fiber,	22.26	"
Various salts,	2.04	"

Small grains grown in hot and dry air, are generally more nutritious than the larger grown in moist soil.

The proportion of gluten, as already suggested, varies very materially in different kinds of wheat. The greater the amount of gluten, the more water it absorbes, and the heavier is the loaf from the same weight of flour. Among the analogies illustrating this point we find the following:

With two pounds of flour and the same amount of yeast, in each experiment, that from northern flour (Cincinnati) weighed three pounds, the Alabama (southern) weighed three and a half pounds. But these proportions are controlled by circumstances.

Different kinds of manure, change to a large extent the condition of these elements. Take for instance the elements of gluten and starch. An experiment used by Hermbstadt, with equal weights of different manures, resulted as follows:

	Gluten.	Starch.
Unmanured,	9.2	66.6
Vegetable manure,	9.6	65.9
Cow dung,	12.	62.3
Pigeon dung,	12.2	63.2
Horse dung,	13.7	61.6
Human urine,	35.1	39.9
Goat's dung,	32.9	42.4
Sheep's dung,	32.9	42.8
Night soil,	33.9	41.4
Ox blood,	34.2	41.3

It will be perceived that as the gluten increases the starch decreases. As to the point which element is the more desirable, our answer is this: For persons with stomachs like that of an ostrich, a large amount of gluten answers a very good purpose. For persons of limited digestive power it is fatal. For dishonest bakers who would make the loaf heavy with the least cost, encourage the increase of gluten. On the other hand, starch, farina, arrow-root, and all substances of that class, are universally wholesome food, and of easy digestion. Bread abounding in gluten, should be eaten before it becomes dry; while that rich in starch remains moist and paletable for several days.

It is very fashionable now-a-days to study the use of soda and all alkalies in the place of yeast. We do not comprehend this. Just *look* into a dish of yeast and estimate its excellence as a diet. An excess of alkali is injurious. So is an excess of water as a counter-agent to an excess of acid, which is very common; soda is highly useful. We know of no good obtained from yeast, except that it makes the bread light, and this is accomplished as well by soda. But "there is no accounting for tastes;" and prejudices on this subject are quite as unmanageable and as ridiculous as exhibitions of "taste" are in other relations.

Wheat should be sown at a depth of one or two inches. M. Moreau planted thirteen beds, with 150 grains each, at various depths, and gives the following as the result:

Depth.	Came up.	No. of heads.	No. of grains.
7	5	53	682
6¼	14	140	2520
5¾	20	174	3818
4½	40	400	8000
4¼	73	700	16,500
3¾	93	992	18,534
2¾	123	1417	35,434
2⅛	130	1560	34,349
2	140	1596	36,480
1¾	142	1660	35,826
1	137	1561	35,072
½	64.	529	10,587
On surface,	20	107	1600

Wheat of the preceding year is preferable for sowing. The success of this crop is very dependent upon the quality of the seed. Defective seed cannot produce a flourishing crop, but during its growth will ever be subject to all manner of diseases. This is also a very hungry crop. It impoverishes the soil more than almost any other. Or we might, perhaps, better avoid such phrases, though quite common, and say that it requires a liberal allowance of those elements of which most of our soils are eminently deficient. Where such deficiencies exist the growth must be very imperfect. Hence it should be sown either on the most fertile soils, or where for previous crops of a different nature, it has been liberally enriched with the phosphates or fertilizers producing soluble phosphates. Free acids are destructive to this crop. A large proportion of clay, that is, clayey soils, are suited for it, rather than sandy or silicious soils, though a free supply of lime, marl, ashes, etc., may secure on the latter a tolerable growth. All these, except the lightest silicious, should be thoroughly ploughed, the clods carefully broken, and the entire mass mellowed.

It may be sown in drills or broad-cast, at the rate of one and a half to two bushels per acre. Even more than this is often used.

Wheat straw is more nutritive as food than that of other grains, but is not more desirable for other purposes. The diseases and the insects to which this crop is particularly exposed will be considered in other papers, as well as the best preventives and remedies.

NORTHERN SUBSTITUTE FOR SUGAR-CANE.

We learn from a writer in the *Journal of Commerce*, that one of our missionaries in South Africa has sent here a few seeds of a plant which is pronounced a substitute for the sugar-cane in the manufacture of sugar, and which will grow well in our climate. The plant is called Imfe, by the Kaffres, but is known by many specific names. It resembles broom-corn, when growing. The natives of Natal cultivate it after the same manner as Indian corn, and it matures in three to four and a half months. It yields a larger quantity of sugar, say from 50 to 75 per cent. from the same bulk, but not of so good quality. It grows on either high or low land, and the abundant seed it produces serves well as feed for horses. A patent for the manufacture of sugar from this growth has recently been obtained in England.

DRAINING HEAVY SOILS.

Mr. Editor:—Much is said of late on the practicability of thorough drainage of soils before cultivation can be successfully carried out on the Farm. Many "teachers" claim that all soils capable of cultivation must be thoroughly drained previous to their becoming fit for good and profitable cultivation. They say in substance, that thorough draining moistens dry soils in dry weather as much as it relieves them of excess of water in wet weather. A doctrine to us about as reasonable as the (stove theory) namely, if one stove in use through the winter will save half of the farmer's wood over the old fire-place, then two stoves set at work ought to save it all. But first what is the object of draining soils? Why, it is of course to relieve them of an excess of moisture or water supposed to be in the soil. But then if there be no excess of moisture in the soil, should the soil be drained by "pipe-tile" in order to moisten these soils in dry weather by the use of air introduced into the soil according to the theory of these "teachers?" We say, no. If a "pipe-tile" is laid down in an ordinary soil, to carry off an excess of moisture supposed to be in the soil, will not this "tile" serve to collect what moisture there is in the soil in a dry time and "conduct" it off? Now instead of this plan, suppose you plow and sub-soil your lands to a reasonable depth, you then open the sub-soil so as to relieve the soil of surface water by heavy rains, also in dry weather moisture is drawn up from the lower sub-soil and retained near the surface with the air to circulate, and demands no "pipe-tile" to conduct off this moisture, but it is retained in the soil. Now we claim that this is all the "draining" that a majority of these "heavy soils" as they are called, need; namely, deep plowing and an occasional sub-soiling. But again, there is another class of heavy soils which want through drainage before they can be cultivated with the best success. On many such soils, in course of the season, the surface will be apparently dry, but a few inches below, stagnant water will be found resting on the sub-soil. Such soils should be thoroughly drained by "pipe or stone," to relieve the soil of an excess of water. On most soils of this character the grasses on the surface will indicate the excess of wet by coarse and rush grasses, heavy ferns, and in some cases alders. Many of these soils are situated on high rolling lands, as it is a law of most of the water-courses that they come out near the surface on high lands, while low valleys and table-lands will be comparatively dry. Low swales, bog and swamp lands are another class of wet lands. These are mostly low lands laying at the foot of high lands and mountains. The draining of such lands and of swamps will depend on the situation of the land aud the character and depth of the soil to be drained. There are in many sections of country nearly whole farms that would pay well for draining, we are well satisfied, but comparing such lands on farms to the whole amount of tillable land in a town or country, and the ratio of lands that repuire "drainage" would be very small. To find out how wet a soil must be in order to require draining, we think (Mr. Johnson of Geneva, N.Y.,) who has had much experience in draining, has given a good rule. It is in substance thus, dig pits or holes at several points in the fields where there is an appearance of water in the soil, at such depth as would be necessary to drain. If water gathers in these holes and stands for several days, it is a sure sign that there is an excess of water in the soil, which should be removed by drainage. We have occupied a hundred acres or so of tillable land, on which there was not an acre or half an acre that wanted any "draining" whatever. "Scientific teachers" declare to the contrary, notwithstanding. What our soil wanted was deep plowing, with an occasional sub-soiling, and this too at a much more thorough rate than we gave it, taking one season with another. But this doctrine that all tillable soils need draining by "tile" before good cultivation can take place, we consider to be as great a piece of "Empiricism" as was ever palmed off by any set of teachers on the agricultural public. Just look at the extra expense farmers must be subject too, if they follow these "teachers," rules of laying down "pipe-tile" to drain dry up-lands which they no more need than they do to have the "Gospel" explained to them. But then these "teachers" say that tile-drains moisten dry land as much in a drought as they dry it when wet. Very well. But few of the most of farmers can afford to lay down "pipe" to moisten their lands in a drought. After this plan, then, go ahead. They may get as much celebrity for "pipe laying" as certain politicians in New-York city once did. We prefer to adopt the more rational, and we think, economical plan, of plowing and sub-soiling in order to moisten land in a drought, and also to relieve it of surface-water in a wet time. Yours, etc., L. Dwands.

Derby, Ct., June, 1855.

CHEAT IN FERTILIZERS.

We have often advocated the importance of a sworn inspector of all guanos or other artificial fertilizers, and every month but adds to our conviction of the necessity of such a preservative against fraud.

One of our most able exchanges, the *Country Gentleman*, has recently charged a fraud of this kind upon our learned neighbor of the *Working Farmer*. We cannot believe so able and practised a teacher in this department should have descended to this depth of crime. We would rather hope and believe that our Albany friend is misinformed. At any rate the learned Professor should at once firmly and explicitly deny the statement, or great injury will be done to the honest trader. If respectable men are found engaged in this business, it will soon destroy all respectable traffic in such articles. The character of the dealer is now the only security of the public. If this is overthrown, it will be regarded in the same light as dealing in gambling tools. Indeed we scarcely know which is most degraded, the corruptor of the kind referred to, who essentially destroys the crops of the country, or he who provides the means for wasting them in games of chance at the gambling-table. The latter is on better ground than the former, in one respect. The gambler does not destroy or annihilate, so much as he fraudulently acquires the property of his neighbor. We hope our neighbor will not rest quietly under this severe charge.

THE CORN CROP—THE GREAT STAPLE.

Our readers need not be reminded of our views on this subject. We regard this crop as by far the greatest, when we consider its profit to the producer, and no crop can be considered superior to this, in respect to its general utility. Our views are well-expressed in the following article which we find in *The Soil of the South*, which, by the way, is one of our best exchanges. It is original in the *Civilian and Gazette*, which we have never met with.

"Plant Corn."

This laconic sentence, uttered by Gen. Houston in 1842, in reply to the appeals made to him for counsel, during one of the most gloomy and trying periods in the history of Texas, ought to be adopted as the motto of the State. To Gen. Houston's military career Texas owes much—probably her very existence as a nation and State; but she owes him no less for his exertions to consolidate her government and secure for her the blessings of peace; to promote order, system, industry and prosperity among her people. All of mere military glory which any man can gain is as nothing compared to the merit which attaches to those who

> "Scatter plenty o'er a smiling land,
> And read their history in a nation's eyes."

It is not enough that Texas can surpass every other State in the production of cotton and sugar. So long as corn is worth a dollar and a half a bushel in the Galveston market, and is brought here at that rate for transportation to the interior, (as it has been within the past two weeks,) the production of even cotton and sugar will be a poor business. In order to the most successful production of other articles, a people must first secure the means of cheap living. If corn is abundant and cheap, meats, and all other necessary articles of subsistence, will be comparatively easy to obtain. If corn is scarce and high, the reverse will follow. The fear of an over-supply of corn has been the great drawback to Texas thus far. It is true that, in the Western States, corn has sometimes been so abundant as to appear almost valueless, but this very fact has made the Great West what it is—the most progressive and prosperous country that ever existed. Notwithstanding the immense supply of Indian corn it has always been usefully employed, and the demand has outgrown the increased production. Recent events have drawn the attention of political economists strongly to this subject, and led to the clear establishment of the fact that corn is by far the most valuable crop in the United States, and that its importance is constantly increasing, while, from the deterioration of the soil and other causes, both corn and the supplies of other articles depending upon it, have greatly fallen off in some of the older States of the Union. Its cultivation is mainly confined to a belt of thirteen degrees. The last census shows that five States, including Western Pennsylvania and Western Virginia, in the valley of the Ohio, furnish half the amount produced in the Union. Though cotton has increased, it has not half so rapidly as maize. The latter is destined to become the great staple of commerce. The climate in Europe is not adapted to its cultivation, and foreign demand is on the increase. It is estimated that 50,000,000 bushels, or 1,500,000 tons, are transported annually in bulk, within the States. 3,000,000 hogs are prepared for market every year, of which 2,000,000 are fatted on corn, consuming 200,000 tons. The manufacturer of 600,000 barrels of whisky consumes 100,000 tons. 170,000 tons are used in cattle feed. The aggregate amount for 1849–'50 is two million tons. According to the current increase, in 1860 nine hundred millions of bushels will enter into commerce, or three million tons, which will furnish exclusive employment for 4,000 miles of railroad. The demand for corn and animals depending upon it is rapidly increasing within the State. It appears that in Kentucky and Tennesee, there has been a great decrease in cattle in ten years; no less than 33,786 of neat cattle in the former, and 72,066 in the latter State. It is stated on the best authority that in Massachusetts, from 1840 to 1850, the hay crop had depreciated 12 per cent., although 300,000 acres had been added to those previously under tillage. The corn crop during the same period fell short 6,000 bushels; there has been a falling off of 160,000 sheep and 76,600 swine. In the State of New-York from 1845 to 1850, 671,692 acres were added to those previously under cultivation, and yet there had been a most alarming falling off in all kinds of agricultural products. The same is true of most of the old States. All these deficits must be supplied from the new States of the South and West. Texas beeves have already found their way to the New-York market. They are still needed, not only there, but throughout the Union. Texas horses, mules, sheep, and hogs would find an equally ready sale, especially if the breeds were a little improved by feeding with corn. These animals have, thus far, been raised here on the spontaneous productions of the soil, and without cost to the owners. Feeding during winter would produce much better stock, and still enable our farmers to undersell those of any other State. According to the best accounts, two years ago, and before the present era of high prices set in, the expense of raising a horse in Indiana, until three years old, was $30; in Kentucky, the cost was from $40 to $45, and its value from $70 to $150; in Maine, the cost till four years old was $60, and the price $100 and upwards; in Missouri, the cost was from $18 to $20, and average price $100. The cost in Union county, Pennsylvania, was from $60 to $80, and the price $125 to $150. In Schuylkill county, the cost is $35 to $45 a year till two and a half years old; after that he will cost from $50 to $60. He will sell from $100 to $230. Corn is not likely to prove a burden so long as it can be converted into horses at these prices; or into pork at from $16 to $20 per barrel.

Late as is the present season, it may yet prove exceedingly profitable to follow the advice at the head of this article.

MEMOIR ON THE PRODUCTION OF BUCKWHEAT.

Buckwheat was introduced into France in the eighth century by the Saracens, in the time of their invasion into that country, and has preserved its name (Sarrazin) from this people, as it has in Poland, where it was introduced by the Tartars, six centuries afterwards, where it is called Tartarka. It is not a cereal, as is generally supposed, but it is now placed by French botanists in the same class as cabbage.

There are two kinds of buckwheat; the common, and the buckwheat of Siberia, as it is called. These two kinds differ very much. The former is more farinaceous than the latter. Prepared with the hull, it is sweeter, and does not heat so quick, as it is less resinous than the other kind with the hull. The taste is more bitter; but as it does not heat so quick, it may be kept a long time. The latter sort, however, is preferred. Two crops of this can be grown in a season, since neither frosts nor hot winds injure it; and it produces fifty, one hundred, and even five hundred fold, while that just named does not produce more than twenty or thirty to one.

The Tartars did not employ the first, as they did not use the farina, but hulling the grains, they used them as they do rice, boiling them in water or in milk. The process of hulling was performed without the use of a mill. Boiling water was poured upon the grains, and after standing an hour, the water was poured off, and the grains were dried by the fire, or in the sun; and after the grains were dry, they were placed between two sheets, and rolled with a wooden roller, by which the hulls were separated from the grains. They were then fanned, and were ready to be cooked. What is surprising, as the result of this process, is, the grains were kept distinct from each other, while those hulled in a mill and cooked, became compact and adhesive.

The people of the East make delicacies from the meal of buckwheat, which is called *ble mondé*, or pealed grain. Open the Thousand and One Nights, and at the splendid banquets, among the most choice dishes served upon the table of Haroun el Raschid, Caliph of Bagdad—were the Bermacedes or ragouts of mutton—served with the meal of the monde; that is, of hulled buckwheat.

In Poland, with the aid of a mill, we find buckwheat not only in the form of coarse meal, but also fine white meal, which is the same thing as the farina of Hecker, manufactured in New-York.

In Germany, as in Poland, this is well known as a healthy and light nutriment, and is used in the confection of sausages with pork, mixed with the muscle and the fat.

The Hollanders make much account of semoulie, or fine meal, which is a source of great profit, and an article of commerce with China, and is there well-known under the name of small European rice. Lord MacCarty, ambassador of England, in that country, reports that a dish offered him by the Chinese, in the name of the Emperor, as a mark of distinction, was nothing else but the meal of buckwheat.

France harvests more than 5,000,000 hectolitres of buckwheat, (a hectolitre being a little less than three bushels,) and of 35,000,000 inhabitants, two and a half millions live chiefly on this production. They use it in the form of farina, of which they make a porridge, of pancakes and of bread, but for the last it must be mingled with the flour of barley or of rye. It is thus made as black as the soot of the chimney. It is dark colored because the grain is mixed with it without hulling.

M. Felix Didier Saniewski, (the writer of this memoir,) a Polish refugee, after the revolution of 1830, having resided in France for five years, perceived that the proper use of this grain was not understood, and constructed a mill of brass, of which the following is a description:

The mill presents a total elevation of a metre and forty-five centimetres, (a metre is a little more than a yard.) The base is of plank, sixty centimetres on the sides and ten centimetres thick, supported by three feet of forty-five cents. in height fastened into them, and supported by cross-pieces. Upon the plateau or base, rests the lower stone, ten centimetres, thick, lying horizontally. This millers call the bed. It is enclosed in a casing to the depth of five centimetres. The second stone is of the same thickness. It lies upon the first, and is supported by iron-work, as is seen in ordinary mills. The two stones are forty-two centimetres in diameter. An opening is made in the upper stone for the admission of grain, ten centimetres in diameter. The base is surrounded with four planks, which form the sides, and which millers call the frame. This extends to the height of five centimetres above the line of the junction of the two stones, and are four centimetres in thickness, making the total dimensions seventy centimetres. There is an opening in the said frame at the same level as the base, to admit of the discharge of the farina. Finally, two uprights or posts, ninety centimetres in height, and fastened to the frame at their extremities by a cross-piece four centimetres in length, which is pierced in the center. Through this orifice a spindle passes, one metre in length, ironed and pointed at the lower extremity. From this opening there passes obliquely a lever, which may be applied to one side of the stone by means of a mortice made in the stone itself, by which the miller moves the stone to the right or to the left.

Not having been a miller, and not knowing, except by observation, the process of preparing the various kinds of food made with buckwheat, by the aid of this mill, which cost twelve dollars, he commenced his experiments, and engaging with a miller of Saint John, of Ruelli, near Orleans, at the commencement of 1836, he ground three hectolitres of buckwheat, and having converted this quantity into coarse meal, he sold it in the markets of Orleans and of Paris at six sous (cents) per French pound, while the same thing imported from abroad had been, before this, sold to "amateurs," for eighteen sous per pound.

It was impossible to obtain, by a large mill, this meal, (semoule); and hence it was necessary to have recourse to his small mill; and after having constructed a bolting-cloth of fine silk, he obtained the most beautiful farina, which was sold at Paris as it had been prepared in the provinces.

Afterwards he presented to the Minister of Agriculture a memoir on this subject. In the years 1837–8, different agricultural societies examined his processes, and reported upon them. At the exhibition of products of 1839, at Paris, he obtained "an honorable mention," and the report of the jury declared that he merited a reward of the first rank, but in consequence of the limited extent to which these labors had been performed, the award could not properly be made. In 1840 he published a memoir upon the products of buckwheat; and in 1842 he went through the departments and instructed the inhabitants how to obtain them, not only by aid of his small mill, but also by using a Holland mill, as well as the mills already in use, in grinding wheat. In 1841, at the exhibition of four departments at Tours, a medal was awarded to him for these services.

He arrived at New-York in 1851, and having noticed in the shops the show of Hecker's Farina, and curious to know what it was, he purchased a pound of it, and having considered it very carefully, he was satisfied that it was the self-same thing as his *semoule*, or the fine meal of buckwheat. Afterwards, passing through Forsyth street, he perceived in the window of a baker's shop a larger loaf of farina not bolted, which he bought on account of its resemblance to that used by his countrymen in Poland. In eating it, he discovered the hull of buckwheat. The baker was a German, and M. Saniewski, understanding his language, inquired of him where he obtained the farina for the manufacture of that bread. The answer was, at Hecker's, in Cherry street. He then visited this mill, and found a clerk who spoke German, with whom he entered into conversation concerning the farina of Mr. Hecker. He commended its excellence, and then, as a stranger, expressed a wish to see the mill. The clerk replied that this was not permitted; that it was a secret which could not be made known to strangers.

As his children had been accustomed to this kind of food in France, and as it was light, convenient, and easy of digestion, he often purchased this farina, and prepared it as he had been accustomed to do, without regarding the directions upon the envelope, especially as neither himself nor the members of his family knew the language. But a while afterwards, having repeatedly bought this farina, he perceived that it had a different taste and a yellowish color after it was cooked, while it had been white; that it was not so compact, and had less adhesion. He then examined the farina as it was bought raw in the package, which he found of a yellowish color, and having tasted it, he was satisfied that it was the farina of wheat as it was used in France. This could readily be perceived, as the difference was obvious after it was cooked, as it is milder (plus liante) than pure buckwheat. This is caused by the fact that wheat contains gluten, while buckwheat does not, which has only albumen, and is more binding and sweeter. In cooking the two another difference is perceived; for when the meal of wheat is thrown into boiling water and is not stirred diligently, it will form a compact mass, which is not in the condition of separate grains, as in the case of buckwheat, although the latter will also form a paste, but when the water is drained from it, and it is removed into a colander, it separates itself into grains. Hence while it is easy to distinguish the one from the other, it is evident that Mr. Hecker uses wheat; first, because there is not a sufficient quantity of buckwheat grown to provide for so extensive a consumption; second, the buckwheat costs more than wheat; third, there is more profit from a given weight of wheat than from buckwheat; fourth, the labor of preparing buckwheat is more expensive; and fifth, the gain is greater.

But to the consumer these two are not the same thing, as the buckwheat, being destitute of gluten, is light and easy of digestion for the dyspeptic, is wholesome for children, and those who cannot eat almost anything else, find no trouble in the use of this. Of this I have had proof from Mr. Mansel, Prefect of Maine and Loire, in France, who was dyspeptic to the last degree, and was given up by his physicians, who having recourse to the pure meal of buckwheat which he purchased of me, after some months, in which he exclusively used food prepared from buckwheat, became so much improved that he could digest any kind of food, and his health and strength were completely restored. The flour of wheat was at the same time injurious to him, and the use of it had nearly cost him his life. Wheat is also injurious to children.

The meal of buckwheat is a wholesome diet; but it should not be mixed with other ingredients, as pounded rice, nor substituted for that of wheat, as, in my opinion, this is a want of good faith to the consumer. To extend the use of this wholesome food, it is necessary that all should know how to prepare it, and that farmers who grow this crop would obtain a greater profit who sell it in the grain, as I have shown above; and I recommend the use of the simple mill, already described, with the following additional conveniences for its manipulation.:

A pan or sieve, or a light trough, oblong, and dug in a semicircular form of common wood, which may be used in winnowing the grain; a sieve through which after the grain is ground the coarse meal, the flour, and the farina, as well as the particles of the bruised grains, may be collected. Three sieves are needed, two of moderate fineness, and one finer at the bottom, made of silk, after the manner of bolting-cloths, or of fine muslin. This is all that is required.

The manipulation is as follows: The buckwheat should be cleared of all gravel; the upper stone is raised by the aid of a screw, which is introduced into the lower stone, and when the grain comes from the mill broken, and passes on to the sieve, giving it a rotation by which the hull rises to the top, and is removed by a stroke of the hand, and is thrown away as useless. Since the light hull will remain on the sieve with the coarse meal, this must be fanned, and that which can be scattered by the wind is driven away, and the pure meal will remain. But it is still necessary to give a blow with the hand upon the sieve, and separate the particles of flour from the hull by this process. The residue which is separated by the wind from the meal is nutritive, but excites heat, although for horses it may be very useful when wet or salted.

The flour and the farina which shall remain at the bottom of the sieve is passed over the sieve, and the farina and the very fine particles of the hull are separated from the semoulé, and it is necessary still to keep the fan in motion. The particles that are found mixed in the flour will rise to the top, and may be brushed away with the hand, and thus the semoulé will remain pure, and fit for commerce or domestic use.

To turn the mill, the strength of a boy of twelve years old is sufficient, and the clearing may be done by the hand of a woman, since it is very light work, and females are especially adroit in this kind of labor. And then, when the mill is to be set away, it may be placed in one corner of a chamber, or in the hall, or in a granary. It is exactly the work for a farmer on a leisure day—being light, useful, and profitable.

If a coarser meal is desired, and it is to be preserved a long time, as on a long voyage, it is necessary to dry the buckwheat before a fire. The manipulation is the same. I have had experience of this in France, having left two sacks of this meal for two years in a moist place, so that the sacks were partially decayed, but on removing those portions of the meal that were particularly exposed, I dried the remainder in the air, and found that it had not lost its flavor.

All these varieties of flour may be obtained with an ordinary mill, but the stones should be very hard, and in good condition. I have had repeated proof of this in France, with the mills of Brittany and of Normandy. But for the wealthier farmers, and those who would make much account of these products, we recommend the Holland mill, which grinds, separates, cleans, and then delivers the products desired. It costs one hundred dollars, but lasts an age. The following is a description of it:

[We shall give this description when we can procure an engraving of it, that it may be better understood. If any are desirous of trying it, we will communicate to them personally such an exhibition of it as may answer the purpose.—Ed.]

I do not know, but I presume that the mill of Mr. Hecker is of this description. The description and the design, connected, were given in my memoir upon the use of Buckwheat, published in France, in 1840. One reason why I entertain this belief is, that the mode of using Hecker's farina, written in his directions, is an extract from this memoir, (p. 71,) under the title *La Semoulé*. Changing the name of a product does not change its nature.

Having indicated the manner of preparing these products, I would give some idea of their value.

Extract from the Report of the Commissier of the Society of Agriculture of Blois, August 25th, 1837: "That the value of the new products which we have discovered may be properly understood, and in what proportions they are to be obtained, we take in our first experiment five pounds (French) of buckwheat, which gave—

Meal, (gruau,) - - - - - -	1lb. 12oz.
Farina, - - - - - - - - -	4½ "
Waste, (recoupe,) - - - - -	1 " 12 "
Bran, (sou,) - - - - - - - -	14½"
Loss, - - - - - - - - -	5 "

In our second experiment, 32 pounds 8 ounces reduced to 31 pounds 3 ounces by cleansing, (the grain being mixed with gravel,) the result was—

Coarse meal, - - - - - -	8lbs. 4oz.
Fine meal, (semoulé,) - - - - -	4 " 4 "
Farina, - - - - - - - -	4 " 8 "
Waste, - - - - - - - - -	3 " 12 "
Bran, - - - - - - - -	8 " 8 "
Loss, - - - - - - - - -	2 " 4 "

Notice how I have proved the correctness of my calculations.

Cost of four bushels of buckwheat at 95c.	$3 80
Expense of preparing it, (a day's work,)	$1 50
Total,	$5 30

Product of four bushels of the grains weighing, after cleansing, sixty pounds:

Coarse meal,	16lbs.	at	30c.	$4 80
Fine meal,	6 "	"	35c.	2 10
Farina,	6 "	"	15c.	90
Bran,	13 "	"	5c.	65
Waste and loss,	19 "	"		00
	60lbs.			$8 45

From this it is obvious what large profits a farmer can secure to himself by preparing his own buckwheat; and I add that the bran is good feed for horses and for swine, while the hulls which he will throw upon his dung-heap is good and nutritious feed for hens and ducks.

I will not speak of the great profits which Mr. Hecker obtains from buckwheat in selling it at one shilling a pound, nor of the monopoly which he has secured of this crop in this section of country, which has raised the price of buckwheat from three to six cents a pound, at the cost of the consumer.

(*To be concluded in our next.*)

NEW-YORK AND ERIE RAILROAD.

A LEISURELY trip over the eastern half of this great road, is an event of great interest and pleasure, as we can personally testify. One thing strikes all travelers early and obviously, the kind and gentlemanly bearing and manners of the superintendent, Mr. McCallum, and his assistants, one of whom, Mr. Hugh Riddle, is in Port Jervis, and has the care of the road from that place to Susquehanna Depot; and this first impression is in no danger of being removed by a more intimate acquaintance either with mechanics or engineers. Another thing which will impress and please the leisurely traveler, is the perfect system which marks the management of the road, from the matters of greatest importance, to the minutest matters in the workshops and around the stations, which enables few men to do the duties which otherwise would be less perfectly done by many, and which awakens a feeling of conscious safety, and excites a friendly sympathy in the mind of the traveler. The repairs for two sections of the road are done at Susquehanna depot, where locomotives are repaired and rebuilt; two hundred men are employed there, and four hundred can be, when business demands the labor of so large a number of persons. Ms. Gregg is the master mechanic. For making and mending wheels, boilers, cylinders, and all other parts of some ten dozen locomotives, turn-tables, round-houses, machines' tools and so-forth, must all be on a great scale, and to manage all the men and work so as to have neither material nor time lost, requires the most skilful, constant, and systematic care. Such is the management of an establishment of such gigantic size. An hour or two under the pilotage of Mr. G., and in free conversation with foremen and subordinate masters, will teach a valuable lesson on kind, exact, and successful management. The lessons of the turn-table and round-house are soothing to nervous people. The way in which the engine is inspected, after "walking over the section"— all around it, and over it, and before and behind it, and in "its joints and articulations," and how every separate part is thumped, handled, cleaned, and made just exactly right, and put exactly in its place; the way this is done all the time, and everywhere, puts the nervous passenger in perfect quietude, and fits him to enjoy the grand, beautiful and sublime scenery lining the sides of the valleys through which the road passes. That scenery, by the way, a man must enjoy in spite of himself; who starts, for instance, from Susquehanna for New-York at 6½ o'clock A. M., on a bright morning in June, and, having had an agreeable interview with himself before starting, takes his seat in the aft end of the aft car, and gives himself up to observations and reverie. Beauty, grandeur, sublimity and youthful freshness in nature everywhere and variously greet him as onward he goes, over the hills and over the valleys in delightful haste, and safety towards New-York. Amidst the most rocky and rugged scenery, the stupendous works of men join with nature in awakening a traveler's wonder and admiration; for, while the road for the engine and his truck has been excavated from the primitive rock on one side of the now calm and now roaring Delaware, across the bosom of said stream, and also excavated from primitive stone, is seen the Delaware and Hudson Canal, whose placid bosom glistens like a silver band along and around the bald black base of the approaching mountain. The road, and river, and canal down at the bottom of a broad ravine, make a grand and sublime impression, every way suited to harmonize with the impression of that charming cascade, a long ways back, which surprised and delighted you by the free and easy way its waters plunged over a high precipice down into an abyss dark as midnight. Nowhere can be found such a railroad scenery. Some experience enables us to speak intelligently in reference to a desirable trip over this road, to take which entitles any man to receive our congratulations.

We hope to be able to make a more extensive report, ere long, of the beautiful scenery along this immense thoroughfare. M. M. D.

INGENIOUS BRIDGE.—A small apparatus for crossing a canal and tow-path, came lately under our inspection in Port-Jervis, N. Y., and we were so much pleased with it, that we attempt a description of it for the benefit of whom it may concern, stating by the way, that one of our friends, Mr. L. H. Beckwith, is the inventor and owner of the bridge we saw. It is built, first, by erecting two posts, each about twenty-eight or thirty feet high, one on the outer edge of the canal, and one on the outer edge of the tow-path. From the tops of these posts wires are fastened and stretched outward at an angle of some forty degrees, and made fast to a tree or post. From the top of each post a wire is fastened, and stretched inward across the canal, and inserted and made fast to the opposite post, just four feet from its top. Another one, perpendicular to the face of the canal, made to roll upon the upper wire by a pulley attached to the upper end of said wire, hangs down to within four feet of the ground, and has a loop in its downward end, of size and strength to admit a foot. Hence to cross the canal, put your foot in the loop of the wire pendent from the higher transverse wire, and also grasp it in your hand and your weight carries you over the water safely. Before starting, grasp also the wire hanging from the lower transverse wire, and slip or trundle it across with you, that you may use it in returning. The wire is about three sixteenths of an inch in diameter, which is used in the construction of Mr. B.'s bridge, which is to him very convenient, and which is a contrivance of much ingenuity.

MECHANICAL STATISTICS.

PORT JERVIS, N. Y.—*Saw-Factory* of James H. Mondon & Co., owners and agents. Shop employs 16 hands on an average; make cast-steel saws of all kinds, taking the steel in sheets.

Machine-Shop included, has J. B. Crisman, foreman; has 3 lathes, and other tools in proportion.

Neversink Foundry, by Van Fleet, Bull & Co., employs 20 hands on an average, running two tons iron daily.

Machine-Shop attached, has 5 lathes, and other tools in proportion.

Repair-Shop of New-York and Erie Railroad.—This shop is one of the smaller ones belonging to this road. George H. Hoagland, foreman. Shop has 6 lathes, and other tools in proportion. Repair locomotives.

Carpenter's Shop, A. Wood, foreman.

Car Inspectors, C. D. Cooper and W. E. Cooper.

W. H. Lamoreux, Wm. J. Hull, Edward Merritt and others, Engineers.

Hugh Riddle, Esq., Superintendent of Delaware Division of Road.

SUSQUEHANNA DEPOT, PENN.

Repair-Shop of New-York and Erie Railroad.—James B. Gregg, master mechanic; A. King, General, and Robert Wallace, Assistant Foreman George Pettit, Dispatcher.

Machine-Shop has lathes, planes, etc., 46, and other tools in proportion.

Largest lathe has face-plate 8 feet in diameter. John Wood and R. F. Brown, Foremen.

Forge-Shop has 2 trip-hammers, 26 fins; Wm. Hunt, foreman.

Connecting-Rod Shop, John Durling, foreman.

Pattern-Shop, William Nugent, foreman.

Print-Shop, John W. Smith, foreman; John T. Bourn, store-keeper.

Foundry, has Samuel Falkenbury, foreman and 14 hands on the average. Frederick Avery and others, engineers.

This shop does the repairs on 105 locomotives, all used on two divisions of the road.

Two new engines of extraordinary power and simplicity have lately been received, built for the road, after the ideas of Mr. Gregg. They have 5 feet driving-wheels, cylinder 17 by 24 inches—outside connections—1100 feet heated surface, 8500 pounds traction—66,000 pounds weight; 40,000 being on the driving-wheels.

Central Village, Conn.

Union Co.—2 mills cotton. H. L. Aldrich, agent.

Old Mill has 18 cards of 36 inches; 3,300 ring and throsele spindles; 84 looms. Cloth is 28x36 inches wide, of yarn, No. 26.

New Mill has 40 cards of 30 inches; 5,500 ring spindles, 132 looms. Cloth 39 inches 72x80; and 36 wide, 60x68; of yarn No. 30. Shepard Dixon, Martin Pierce, Benjamin R. Money, Wm. J. Potter, and others, overseers.

Almyville-Mill—Cotton. Sampson Almy owner and agent.

Mill has 18 cards; 80 looms; 3,448 spindles. Cloth 32 wide, 72x88; and 34 wide; 72x88.

Moosup Mill—Woolen.—E. A. Russell, owner and agent. Mill has 7 sets cards, of 40 strands each, and 47 looms. Make first class fancy cassimeres and doeskins.

Waregan Mill—Cotton.—J. S. Atwood, Superintendent; has 70 cards; 10,500 spindles; 236 looms. Cloth 34 wide, 84x100; and 40 wide, 84x84; of yarn No. 35. Alfred Chatterton and others overseers.

WELDING CAST-IRON.

The welding of cast-iron, part to part, or a new part to an old one, is done by a process different from the welding of wrought-iron; and yet the process of doing it may properly be called welding. The honor of first welding cast-iron, since the reviving of art, probably belongs to Mr. Samuel Falkenburg, foreman of the foundry attached to the Susquehanna machine-shop of the New-York and Erie Railroad. The process is somewhat as follows: Mr. F. has a pattern made of the casting to be supplied to another given casting, and moulds the casting with the use of the pattern to the imperfect piece. Instead of pouring the fused iron into the mould, and allowing it immediately to cool, the fused iron is permitted to escape by a prepared orifice—the pouring of the fused metal and its escape being continued—until the rough edges of the imperfect piece become fused by the heat of the passing fused iron, when the orifice by which the fused metal escapes is closed, the mould is filled, and the iron, thus confined in juxtaposition with the melted edge of the unmelted iron, gradually cools and becomes solid. When the sand is removed, the new part is found to be one with the old, the welding and supplied part being perfect. The welding has been most frequently performed upon locomotive cylinders, one part of which has been broken off. It will readily be seen that one great difficulty to be overcome is the difference in the contraction of the new and old parts while they are cooling. This difficulty is greatly diminished, if not satisfactorily overcome, by heating the cold iron as much as may be done before the new metal is poured into the mould. By this means the shrinkage of the old and the added parts become equalized. Many damaged cylinders have been mended in this manner by Mr. F., and consequently much expense has been saved to the road. We are assured by Mr. Gregg, the able master-mechanic of the shop, under whose supervision some one hundred locomotives come, that the welding is perfect and hence satisfactory, though some cylinders have been damaged by having pieces broken out through the whole length, and some also having flanges broken off. Mr. F. has procured no patent right for the sole use of his discovery, yet this acknowledgment is his due—he being the discoverer of the mode of welding cast-iron. This discovery is abundantly sufficient to entitle him to be honored as the benefactor of mankind. The process by which it was reached partakes about as much of invention as of discovery.

PANORAMIC VIEWS AND PAINTINGS.

J. B SMITH'S TOUR OF EUROPE.

"WHO does not believe his own eyes?" "What I see I know;" and other expressions of like import, are heard almost every day. But such phrases do not embody the whole truth. What a man sees is fixed in his mind in definite form. It is bounded by mathematical lines, and by well-defined surfaces. Half the people in the world do not know what they think they do. Ask for a definition of hundreds of words, without entering upon difficult abstractions, like *virtue*, *kindness*, etc., and though they are used perhaps every day in common conversation, you will fail to get correct answers. The definitions may be only imperfect and partial, or even positively incorrect.

We have a system in our own mind in regard to visible illustrations. We would employ them in almost every branch of education for the young and for the old. Who would teach geometry without diagrams? Who would instruct in architecture without drawings and models, and even actual structures? In our view such aids are almost equally essential in geography, history, etc. In botany it is absolutely impossible to teach or to learn merely by definition and explanation. Such studies alone are not worth a mill.

The missionary enterprise, in our view, would be wonderfully benefited could the scenes witnessed by our missionaries be presented before the vision of the people who are called upon to sustain them. Give us such facilities for reaching the hearts of the people, through their eyes, and we need not fear to insure an increase in missionary contributions of one hundred per cent. We have made such statements often in private circles, and sometimes in public assemblies. We must have personal knowledge of the recipient of our charities ere our last coin is drawn from our pockets, and any arrangement which approximates towards this adds to the weight of the motive which operates upon us.

In geography we have tested the powers of the magic-lantern in giving interest to a branch of study in itself as an abstraction as dry as any art of the chemist could make it. So, too, in astronomy. And what would one know of chemistry without seeing experiments?

What is "a knowledge of geography?" A readiness in giving latitudes and longitudes, with certain names of very uncertain forms of mountains, etc.? Not at all. These are but the frame-work. We should know the forms, appearances, habits, manners, dress, opinions, etc., of the people. It is this, and this only, which is worth study. We would see the people, see their houses, their public buildings, etc., and extend this kind of instruction in the greatest possible degree.

Views of cities, mountains, cataracts, etc., are interesting to all, learned and ignorant, young and old, and give a zest and a reality to less *material* topics.

J. R. Smith's Pamorama.

We were led into the preceding train of remark by witnessing the views of various European cities, now on exhibition in this city. As a mere work of art, Mr. Smith's Panorama of European cities, etc., is the finest we have ever seen. Such effects could only be produced by a skillful hand. The perspective, in which so many fail, is preserved throughout, with scarce an exception even in minor points. The coloring, shading, etc., are admirable. So, too, the selection of scenes presented is very judicious. There is much meaning in a remark in a little descriptive pamphlet which Mr. Smith gave us, in which he says, "Leghorn is a fine place, but not for a picture." He has presented us good pictures. We would not like to dispense with one of them, but with the young pupil of Master Squeers cry "more, more." We have capital views of Rowen, Paris, Brussels, Hamburg, Berlin, Milan, Venice, Florence, Rome, Naples, etc., with various castles, cathedrals, palaces, monuments, churches, etc., mountain scenery, views on the Rhine, volcanoes, and other natural objects; every one of which is worthy of careful study, and which exhibit capital judgment in the artist. Besides this, we are satisfied that the views are true to the reality. The single view of the great cathedral of Milan by night, lighted, and filled with people, is fully worth the price of a ticket. So is the night view in Hamburg. So is the view of Heidelberg castle. Several glaciers are included in the views of the Alps, which teach better than any geography can, the various forms and appearances which they assume. We know of no better method of giving interest to studies of this sort than by such representations. Had we a class in geography to instruct, we would take them to such an exhibition as this, even at our own cost. Even ordinary engravings are better than nothing. Well-made panoramic views are second in value only to an actual visit to those places, and almost all of us must confine our foreign tours to the halls where panoramas are exhibited.

But we would say a word more of this work of Mr. Smith, as a work of art. We should like to know how all the capital illustrations of day and night, moonlight, the light of conflagrations, the twinkling of stars, the sparkling of crystals in caverns, etc., etc., can be represented in a style so splendid and so true to nature. Perhaps we can get admission to these secrets. If so, we will tell you, kind reader, all we are permitted to. The thunder and storms, and even the roar of the batteries before Sevastopol, belong to a humbler department of art, and are properly introduced into such representations rather to relieve the observer, and prevent weariness from a constant tax of eye-sight, than for their literal resemblance to the tempests of the outer world. Of the reliabilility of these representations we have evidence in the fact that the views were taken on the spot, and have been successfully exhibited in several European cities. The views of Sevastopol are taken from the drawings of the French engineers.

The style of painting in a panorama is peculiar. A mere portrait-painter could not succeed in it. An artist quite skilled in common landscapes would need some experience in this particular branch of the art. The scene-painter, who so much increases the interest of dramatic representations, boasts an art peculiarly his own. It is unlike all other styles of representing nature, and most emphatically so when most true to nature. The artist who produces a good panorama, possesses an art scarcely less distinct from all others than does the dramatic painter.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

COMPANY OF INVENTORS.

SIRS :—I gladly avail myself of the opportunity you offer, in your July number, to propose myself as a candidate for membership of a Company of Inventors, on the plan you propose, should the plan meet with such general favor as to bring together a number sufficient to be effective.

Several attempts have been made to form associations of Inventors; but none that I know of that proposed to make inventions help each other in the way you suggest. They were rather designed to obtain amendments of the patent laws; and examine and certify as to the merits of inventions, so that capitalists might rest assured of the safety of investing money in them, and the inventions, thus endorsed and aided, might speedily become profitable to all concerned.

I have little hope from attempts of this kind to amend the patent laws; still less hope have I that examinations and reports will influence capitalists. Inventors themselves, generally, have been obliged to demonstrate the utility of their own inventions, before capitalists would engage in them; and such will continue to be the only course until science is more generally taught than it is at present.

But a combination, by which the force of a number could be applied to one invention at a time, would excite hope, and induce inventors to make the advances needed, for the sake of having the like aid, sooner or later, and the profit they might reasonably expect from their own judicious choice of the inventions to which they could appropriate their funds.

I would gladly avail myself not only of the capital which such a company might appropriate, but also of the talent that would probably be offered, on the conditions proposed, namely, that the profits resulting from such joint labor and hazard should be divided, by disinterested judges, among those who had contributed to the result. My improvement in the steam carriage, if it have the aid, instead of the rivalry of the inventive talent of the country, will, I am confident, produce money enough to enrich hundreds; yet if left to the judgment of capitalists, it may be a long time before it is brought into use. I have always hoped to concentrate in one powerful company all the improvements that may be made in this invention, and to make it for the interest of every inventor to work with me, and not against me; and I cordially invite such coöperation as you have proposed.

The approaching fair of the American Institute at the Crystal Palace, will afford an opportunity to organize such a company. Meantime, I hope you will receive the names of many inventors, and many enterprising capitalists, as members of this proposed company. Yours respectfully, J. K. FISHER.

PRESERVATION OF MILK.

THE following method of preserving milk for any length of time is found in the *London New Monthly Magazine*. It looks to us rather a dubious process, but we should like very much to have it tried, and the results reported to us. If successful, this is of very great value for ships at sea, and for all in warm climates.

"Provide pint or quart bottles, which must be perfectly clean, sweet, and dry; draw the milk from the cow into the bottles, and as they are filled, immediately cork them well up, and fasten the corks with pack-thread or wire; then spread a little straw on the bottom of a boiler, on which place the bottles with straw between them, until the bottles contain a sufficient quantity. Fill it up with cold water; heat the water, and, as soon as it begins to boil, draw the fire, and let the whole cool gradually. When quiet cold, take out the bottles and pack them in a cool place.

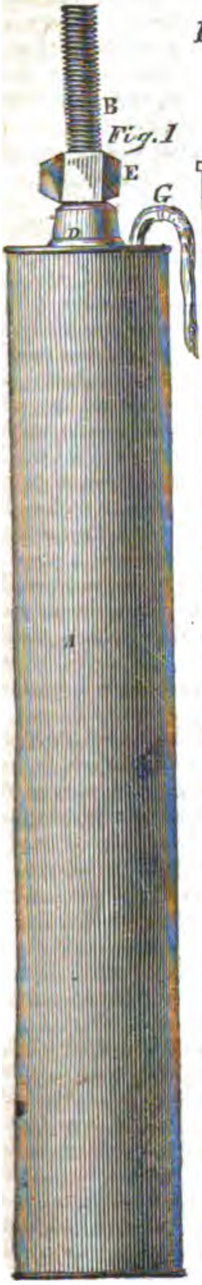
"Some years since, there was a Swedish or Danish vessel at Liverpool, having milk on board, preserved in this manner. It had been carried twice to the West Indies, and back to Denmark, and been above eighteen months in the bottles; nevertheless, it was as sweet as when taken from the cow."

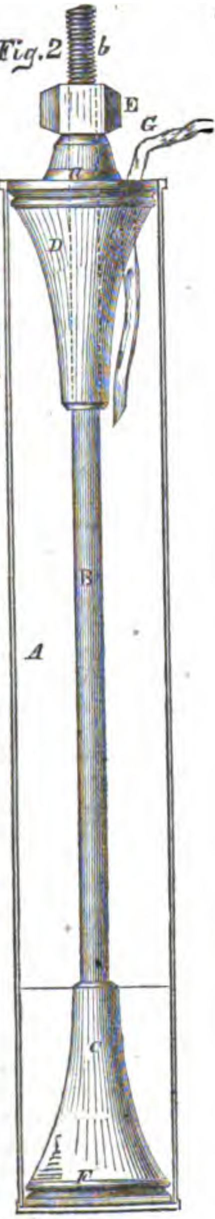
On this subject the editor of the *Chemist*, in the May number, remarks:

"We lately tasted, at the Royal Institution, milk preserved by Mr. Mabbrun's process, and which had been presented by the Abbe Moigne to Mr. Barlow, who alluded to it in his lecture on preserved meats and vegetables. This milk was one year old, and was as sweet as when first drawn; a considerable quantity of cream had collected in the necks of the bottles."

FALL RIVER ROUTE TO BOSTON.—We have again had occasion to send two ladies of our family, unattended, over this route. We never feel regret on account of such necessity, for we know they will be well cared for. A letter received from them, after stating sundry particulars, says: "You must puff this line handsomely, for they richly deserve it." Especial reference is made in it to the clerk, and we have ever found him prompt in business, careful in his especial trusts, particularly attentive to those who make known their wants, gentlemanly and kind to all. Capt. Brayton is a model commander. The whole arrangement on board is judicious; the tea-table superior to that of any other line, and the servants are attentive and courteous.

ROCK BLASTING.





The annexed figures are views of an an improved implement for blasting rocks, for which a patent was granted to Capt. C. F. Brown, of Warren, R. I., on the 11th of July last.

Figure 1 is an external view of the implement, and figure 2 is a vertical section of the tube which contains the charge. Similar letters refer to like parts.

This invention relates to a new and useful implemement for blasting rocks, and consists in placing the powder or charge within a tube or case, between two heads provided with suitable packing, and attached to a rod, by which arrangement the charge is prevented from "blowing out," or obtaining vent in the direction of the line of the hole in which the tube and charge are placed, and the whole effect of the charge is exerted against the sides of the tube or case.

A represents a tube or case constructed of sheet metal, paper, or other material; B, figure 2, represents a metal rod having a conical metal head, C, permanently attached to its lower end. The diameter of the base of the head B, corresponds to the diameter of the bore of the tube or case; D is also a conical metal head, placed loosely upon the rod, B, in in an inverted position, the rod passing through a circular hole, *a*, which is made longitudinally through the center of said head, represented by dotted lines, figure 2. On the upper part of the rod, B, a screw thread, *b*, is cut, and a nut, E, works thereon. F F are metalic rings which encompass the heads near their bases, and serve as packing; G is a piece of fuse, the lower end of which is attached to the small end of the head, D, and the upper end is passed through an aperture, *c*, in said head, and projects a suitable distance above the tube, A. The implement is used in the following manner: The rod, B, is inserted within the tube, A, the head resting upon the bottom of the tube. The necessary amount of powder is then poured within the tube: the head, D, is placed down upon it, and secured at this point by the nut, E, which is screwed down against D. The space within the tube between the two heads, C D, is therefore filled with powder, and the tube is inserted within the hole which is drilled in the rock in the usual manner, the diameter of the hole corresponding to the diameter of the tube, A; the fuse, G, is to be sufficiently long to reach the top of the hole. The powder being ignited by means of the fuse, the rings, F F, are forced tightly between the heads and the tube, and effectually close the top and bottom of the tube, and as the powder, when ignited, will act with equal force against each of the heads, C D, it is evident that no vent can be obtained in a direction in line with the hole in the rock in which the tube or case is placed, or as commonly expressed, the charge cannot "blow out," and the whole effective force of the powder will be exerted against the sides of the tube, and the splitting of the rock rendered certain. The heads are made of conical form in order to deflect, and thereby diminish the force of the power exerted against them. The packing, F F, may be formed of rings similar to metallic packing of a piston for steam engines. The rod, B, should be sufficiently thick to prevent breaking, and to resist the force of the power exerted against them. The above implement is effective, and rocks may be blasted with much greater facility than by the ordinary mode, no tampering or packing of clay being necessary to confine the powder within the hole. The implement may be used repeatedly, as it cannot be projected to any great distance from the spot where used.

The packing-rings, F F, may be entirely dispensed with by using a small quantity of sand, say sufficient to come near the top of the conical head, then pour in the powder on top of the sand, then insert the fuse, and pour a small amount of sand upon the powder as directed above, taking care that the fuse has entered the powder. The head, D, is placed down and secured by the nut as described above.

Sand is better than the rings, and the implement should be washed after using. The readers of this journal may be assured of the excellence of the apparatus, as tested by repeated experiments, witnessed by many competent judges. Any further information may be obtained by addressing the inventor as above.

PEAT COAL AS A SMELTING FUEL.

THE intrinsic excellence of the fuel producible from our waste peat bogs, induced us to write, so far back as 1846, that "we should one day be able to manufacture, if not coal, as at present dug from the bowels of the earth, at least a fuel equally useful for all the purposes to which the former is at present applied." Since this early date, it is true that nothing has been done on the large scale to render waste bog an industrially valuable fuel; but abundant proof has been given of the truth of our original observation. The nine years' interval has witnessed the manufacture of a fine, hard, and rich fuel, far superior in many points to the best pit coal, both as a smelting material, and as a fuel for numberless industrial pursuits.

To accomplish this, the work of many minds has been required, and many varieties of rich carbonaceous material have been developed during the prosecution of the search. But amongst the most persevering and successful promoters of the pursuit, we have to rank the Messrs. Gwynne, of Essex Wharf, London, who have originated and apparently perfected a system of making a solid carbonaceous fuel, and have, besides, satisfactorily applied it in the manufacture of iron.

Dr. Letheby, of the London Hospital, has examined this fuel, and he reports most favorably upon it. The specific gravity of the block on which he operated, was 1.14, its structure being very hard and dense. The actual stowage weight of a cubic foot was 71.24 pounds, whilst Newcastle coal is about 49.69 pounds only. One hundred parts of the fuel contain nine of hygroscopic moisture; and they yield 55 of volatile matter, much of which is condensible, and thirty-six parts of charcoal. The charcoal contains 3.8 of ash.

In submitting one pound, or 7000 grains, of the fuel to distillation in an an iron retort, the resultant volatile products were conducted through a red-hot iron tube, in the hope that the paraffine of the tar would be decomposed and converted into a gaseous hydro-carbon of high illuminating power. The results of this treatment were 2520 grains of charcoal, 1320 of ammoniacal liquor, 360 of thick tar, and 2800 of combustible gas. This gas amounted to 6.25 cubic feet, and when burnt at the rate of five cubic feet per hour, from an argand burner with fifteen holes, and a 7 inch chimney, it gave a light equal to that of seven sperm candles, each burning at the rate of 120 grains per hour. One hundred parts of the prepared peat therefore furnish:—Of porous charcoal 36, ammoniacal liquor 18.86, thick tar containing paraffine 5.14, and gas of an illuminating power of seven candles 40 parts.

Dr. Letheby sums up his report in these terms:—"The amount of gas is very considerable, (a ton of the material furnishing as much as 14,000 cubic feet of gas,) and although the illuminating power is not very high, yet from the fact that much of the tar and paraffine had actually been rendered gaseous by their passage through a red-hot tube, there is every prospect that they might be still further decomposed, and converted into gases of high illuminating power. The gas, when purified by passing through an alkaline mixture, was found to be entirely free from sulphur; and in this respect it has great advantages over coal gas, for the products of its combustion are wholly harmless in respect of their action on inorganic matter, such as books, drapery, and other perishable fabrics; in its use as fuel, there is no opaque smoke evolved, no sulphurous acid is set free, the heat is quickly raised and quickly diffused, the ashes never clinker so as to choke the bars of the furnace; and that the peat does not contain any metallic sulphuret or other substance that is likely to produce spontaneous combustion. In short, it fulfils most of the conditions which are mentioned by Dr. Lyon Playfair and Sir H. De La Beche in their report as to the requisites for a good fuel."

The Sheffield steel-makers cannot now get a proper supply of Swedish iron even at £38 a ton. We have no substitute for this costly material in our pit coal iron; but we have a remedy in the employment of charred peat. Good British ore, smelted with peat fuel, would most undoubtedly rival the best productions of Sweden, and at a cost which puts comparison out of the question. Mr. Gwynne, indeed, boldly asserts that, with his process of smelting, he can supply iron for the steel-makers at one-half of the price now paid to Swedish houses.

The uniformity in the character of the iron produced by the peat smelting is a great feature in its favor, and besides this, the quality of the metal is fully equal to what bears so high a price as "charcoal iron." What greater inducements could we have for a trial of the peat system?

Mr. Summerhill of Sheffield, has tried charred peat in his charcoal fires, and he finds that, with one ton of the charred but uncompressed Flintshire fuel, he can produce upwards of 2½ tons of "charcoal iron." This iron was made into tin-plate material, weight for weight; charcoal from peat has a greater tendency to make iron "burrow," in comparison with the common system of treatment, and the product is extremely well suited for the wire-drawer. The blast pressure under which Mr. Summerhill worked in the case which we have adduced, was 2½ pounds. If we have so excellent a smelting material lying in abundance before us, we shall have ourselves seriously to blame if we neglect its very evident application.—*Pract. Mech. Journal, London.*

IMPROVED STEERING APPARATUS.

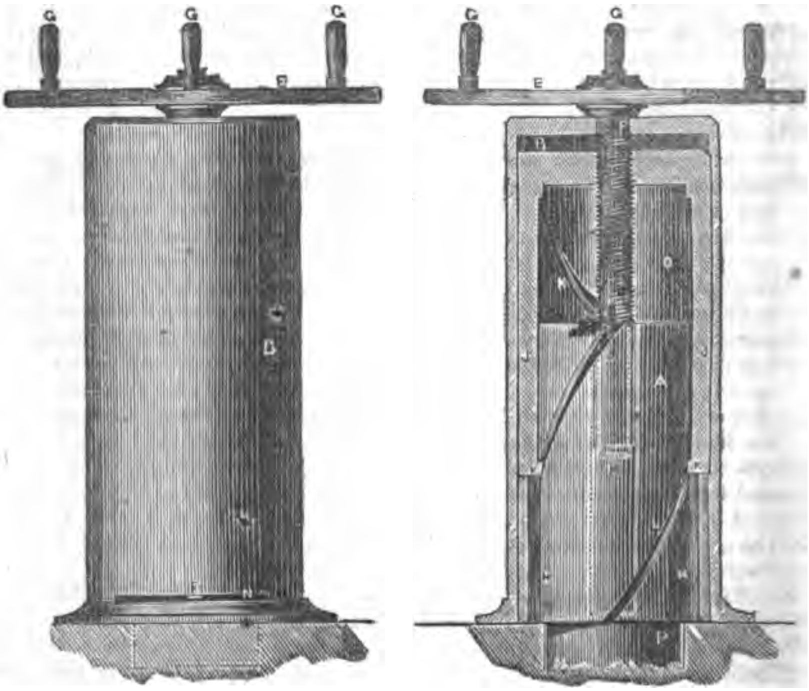


Figure 1. Figure 2.

This remarkably neat and compact steering apparatus, is the invention of Capt. Charles F. Brown, of Warren, of Rhode Island, who has taken measures to secure a patent for the same.

Figure 1 is an elevation of the apparatus, and figure 2 is a vertical section.

The neatness of the apparatus is observable at a glance; it combines compactness with the great power of the screw and inclined-plane. The outside is composed of a hollow pillar, B, fig. 1, bolted to the deck. E is the horizontal wheel, with its handles, G G. This wheel is secured on a strong screw-rod F, which forms its axis. It passes freely through the collar of the hollow pillar, and works into a thread collar in a hollow tube or metal cylinder, J J. This cylinder is made with two feathers, H H, on its outside, to slide in two vertical grooves in the inside of the pillar, B, to guide the cylinder J J, steadily up and down, as it is made to slide thus when the screw is turned by the wheel. This cylinder, J J, has two spiral flanges, K K, extending on each side from top to bottom, on the interior, O. The rudder post P, has a metal top, A, firmly secured to it, and made of a somewhat greater diameter than the post below. This head of the rudder post has two spiral grooves, L L, cut around it, into which the spiral flanges, K K, of the sliding cylinder fits. The head, A, of the rudder post has an interior hollow part, M, represented by the dotted lines, in which the screw-rod, F, turns, but does not touch. The screw acts only upon the thread of the collar of the sliding cylinder, J J, raising it and depressing it, as the wheel is turned, and when it is raising or falling, the flanges, K K, acting in the grooves, L P, of the head of the rudder post, turns it with great power to steer the vessel. On fig. 1 there is a small slit, N, at the bottom of the hollow pillar, in which is a pointer F, attached to the rudder post, which turns so as to indicate the degrees through which the rudder has moved. A dial can be secured before it, with the degrees marked out on it. This is a very beautiful arrangement of itself. For compactness and neatness, we have seen no steering apparatus, to equal it. It has been highly approved of by all nautical gentlemen who have seen it.

More information may be obtained by letters post-paid, addressed to Capt. Brown, who is a gentleman of great mechanical ingenuity.

HOLYHOCK PAPER.

JAMES NIVEN, *Keir, Dunblane.—Patent dated November* 10, 1854.

MR. NIVEN here puts forth the claims of one of the many plants which grow luxuriantly, and with little cultivation, in all parts of the British islands, as a cheap raw material in substitution of the rags used in the manufacture of paper. The present invention, in fact, relates to the application or employment and use of the plant commonly known as the Hollyhock, or Rose-Mallow—that is to say, the plant which, in the botanical classification of Linnæus, is the Althæ Rosea Monodelphia Polyandria, and is comprehended under the natural order "Malvaceæ," or of plants of the genera "Malva,"—in the manufacture or production of pulpy material from which paper is to be made, as well as in the manufacture or production of fibrous materials for textile purposes. The invention, as regards both these uses, applies to all the many varieties of the hollyhock plant, or the order "Malvaceæ," but more obviously and particularly to the ordinary large garden hollyhock. The stems of such plants furnish large quantities of long fiber of great tenacity, which fiber, when duly prepared, is most excellently suited for the preparation of a powerfully cohering paper pulp, as well as for use in textile manufactures. Being a perennial rooted plant, the roots are also largely available for the production of strong fiber. In adapting the stems of such plants to the manufacture or production of paper pulp, the plant is used either in a green or dried condition; it is preferred, however, to operate upon the stems immediately, or soon after the plants are cut or pulled in the ordinary manner of gathering and removing such plants. When the stems are removed from the earth, they are first of all steeped in water for a term of six or eight days, more or less, the practical duration of such steeping being regulated and governed by the actual resultant effect of the water; that is to say, the steeping is continued until the pure and valuable fiber will freely separate from the ligneous or woody portion of the stems.

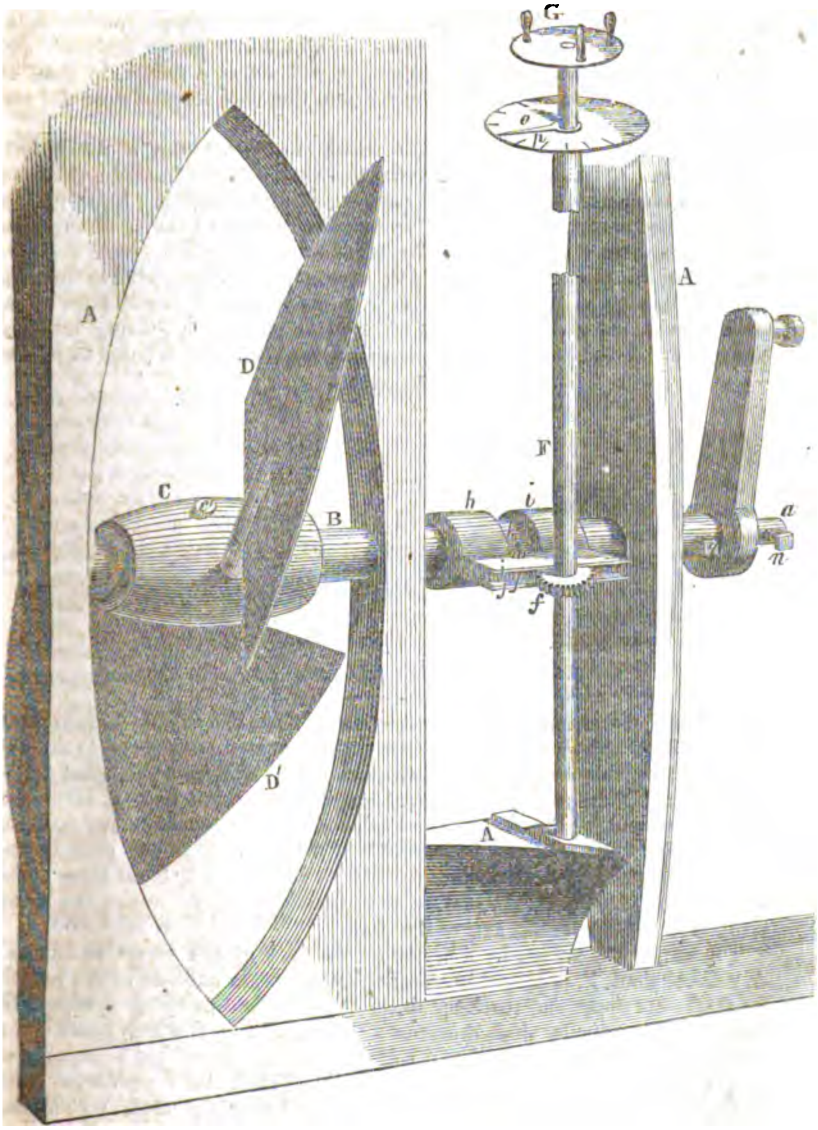
At this stage of the process of manufacture, the stems under treatment are removed from the water or "steep," and they are then submitted to the action of any suitable mechanical arrangement for the purpose of beating or breaking them up. This breaking up may be effected in the general manner commonly pursued in the primary breaking of the flax plant, so as to disintegrate the fibers and break off the woody or ligneous portions of the stem. It is not, however, essentially necessary to remove the ligneous portions, as it has been found that the whole of the stem is fitted for being reduced to a pulp. During, or subsequent to this disintegrating process, the mucilaginous or gummy matter, with whatever aqueous matter is present in the stems, is washed clear away, either by pure water, or by an acdulous solution, or by any other economical and effective cleansing agent. When the stems are thus fully reduced or disintegrated, the ligneous waste portions are removed, and the resultant fibrous mass is spread out in the open air, where the sun's rays can act upon it to bleach and dry. When so bleached and dried, the fiber may be stored away for subsequent use. In making paper from the fiber so prepared, the fibrous mass is bruised or broken down in any suitable mechanical apparatus, and it is then chopped or finely divided by any suitable cutting instrument. The reduced mass is then soaked in water, and worked up or macerated in the usual manner, as pursued in the ordinary manufacture of paper from rags, for the production of a pulpy mass suitable for the use of the paper-maker. The pulp so made is capable of being used in the manufacture of paper, either alone or unmixed, or it may be commingled with other materials already in use in the paper manufacture. When the pulp is obtained, the subsequent routine of its manufacture into paper is similar to that pursued with the ordinary rag pulp, or it may be varied as the properties of the fiber may suggest.

In the application of the hollyhock stems to the manufacture of textile materials, the fibers prepared in the manner just described, are subsequently treated according to the existing textile processes; such processes, for instance, as are adopted in the flax manufacture. Being strong and of good staple, this fiber is particularly well suited for being prepared, spun, and woven into cloth. And it has been found, that the roots of the plants are also well adapted for the production of a remarkably strong fiber. Hence, in manufacturing practice, so often as the crop of plants grown for the purpose requires renewal, the roots are to be taken up and prepared for the obtainment of fiber, both for the manufacture of paper and for textile purposes. When taken from the ground, the roots are macerated and reduced, and the farinaceous matter contained in them being removed, the resultant fiber is employed in the manner already pointed out, but more particularly for the manufacture of paper.—*Pract. Mech. Journal, London.*

IMPROVEMENT IN SCREW PROPELLERS.

PATENT GRANTED JULY 12, 1855.

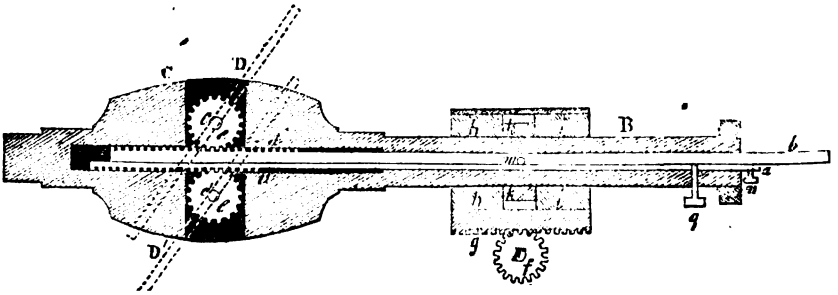
FIGURE 1.



THE accompanying engravings are views of improvements in Screw Propellers, invented by Capt. Charles F. Brown, of Warren, R. I., who has secured a patent for the same. Figure 1 is a perspective view, showing the propeller, rudder, and part of the frame of a vessel at the stern. Fig. 2 is a horizontal section taken through the axis of the propeller. The same letters of reference indicate like parts. This invention relates more particularly to that description of screw propellers which has its blades adjustable in the hub, for the purpose of altering the pitch of the screw, and for bringing the blades to a position to offer no material resistance to the progress of the vessel when under sail. Another principle of the improvement consists in so operating one of the blades, that, when brought into a proper position, and the revolutions of the propreller stopped, it will act as a rudder, in case of the vessel's rudder being disabled, and it will therefore serve to steer the vessel when under sail.

A A is the framing of the vessel, in which are the bearings of the propeller shaft, B. C is a hub on the shaft; this shaft is bored from the front end nearly to the back end—the bored part extending through the hub; in this bore is fitted a rod, *a b*, which is furnished at that part passing through the hub with a rack, *d*. The hub is also bored transversely, to receive the pivots, *c c'*, of the propeller blades, D D'; these pivots are not radial to the hub, but pass through it at equal distances from the axis on opposite sides to it. Each one of the pivots carries a small toothed pinion, *e e*, gearing into the rack, *d*, on the rod, *a b*. The hub is solid except where it is bored to receive the rod and the pivots, and where it is slotted from the outside to the center bore, to allow the pinions to be inserted. The pinions are secured to the pivots, and the pivots are confined in the hub by the pinions or by other suitable means. If the rod, *a b*, be moved longitudinally, the rack, *d*, turns the pinions, *e e*, and by this means, the blades, D D,' are brought to any position either in line with or parallel to the axis of the screw, or at any pitch or inclination in either direction, so as to make a right or left hand screw; the pinions are geared with the rack so as to make each blade occupy the same position in relation to the axis of the shaft.

FIGURE 2.



The rod, *a b*, is moved by a person on the deck of the vessel, as follows: A vetrical shaft, F, is placed in suitable bearings near one side of the propeller shaft—its upper end reaching above the deck and carrying a wheel, G. Opposite the propeller shaft it carries a toothed pinion, *f*, which gears into a rack, *g*; this rack is attached to a collar, *h i*, which fits to, but is capaple of moving longitudinally on the propeller shaft. This collar is prevented from turning on the shaft by flanges, *j j*, above and below the rack, which embrace the pinion and keep the rack in gear. There is a recess in the collar, *h i*, which divides it into two parts, and in this recess is fitted another collar, *k*, fitting to the shaft, B, so as to be capable of sliding on it, but this collar is made to turn with the shaft by a pin, *m*, passing through it and the shaft, and through the rod, *a b*; a slot in the shaft allows the pin to move longitudinally, by turning the wheel, G, the pinion, *f*, is made to move the rack, g, longitudinally; and the collar, *h i*, moving with the rack actuates the collar, *k*, while the pin, *m*, moving with the said collar, actuates the rod, *a b*, and causes the rack to turn the pinions, *e e*; this can be done either while the propeller is revolving or while it is stationary. A dial, O, is placed upon deck, and a pointer, *p*, on the shaft. F, indicates the position of the blades. This is seen on deck, and is a very convenient arrangement for setting the blades.

The rod, *a b*, so far as it has been described in its relation to the adjustment of the blades of the propeller, may be considered a single rod, but for the purpose of using the blade of the propeller as a rudder, it (the rod) is divided longitudinally into the two parts, *a* and *b*, which are held together by a screw-bolt, *n*, at the front end when the propeller is in use. The part *a* of the rod carries that part of the rack which gears with the pinion, which is on pivot *c* of the blade, D, and the part *b* carries that part of the rack gearing with the pinion on the pivot *c*,' of blade D.' The blade, D, is the one which is intended to serve for a rudder; and, for that reason, that portion *a*, of the rod is made larger than the other, and for another reason, viz., when the other blade is not in use, it is necessary for the pin, *m*, to work clear of the other part, *b*. The first thing to be done to use the blade, D, for a rudder, is to bring the said blade, D, to a vertical position downwards, and this is done by stopping the engine in a proper position. The blade, D,' is then secured in its place above the other one by a set screw, *q*, which passes through the shaft, B, into a recess in the part *b*, of the rod. The screw-bolt, *n*, is then loosened from that part, *a*, of the rod, which is thus left free to be moved independently of the other part, *b*, of the rod, thus enabling one of the blades to be used for a rudder in an emergency.

The superiority of this mode of arranging and adjusting the blades, consists chiefly in the depth of bearing, or socket obtained for the pivots of the blades, by fitting them through the hub. The common arrangement is to make the pivots, *c c*, radial, and to turn them by bevel gearing—that is, in arrangements of adjustable blades; this prevents their being carried through, and requires the hub to be hollow to receive the gearing. This arrangement is therefore more compact, and far stronger, according to the dimensions of the parts. The steering improvement, in many cases, may be the means of saving a vessel, as in a case like the Helena Sloman.

THE sixth annual meeting of the AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF EDUCATION will be held in the chapel of the New-York University on the 28th, (Tuesday,) 29th, 30th, and 31st of August, 1855. The Introductory Address will be given by Alexander Dallas Bache, LL.D., the retiring President.

PRINCES' PROTEAN PEN.—We again call attention to this new pen. It pleases us much. We seldom sit down to write an hour at a time without using it. We should be very sorry to be deprived of it.

One form is for the pocket, and another is for the desk. The former may be carried in the pocket, full of ink, and without risk to a white vest.

Fig. 1

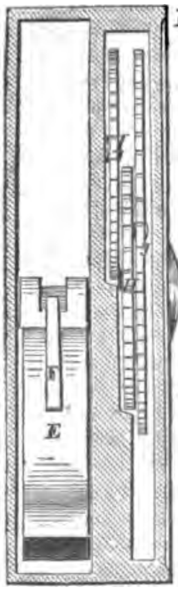
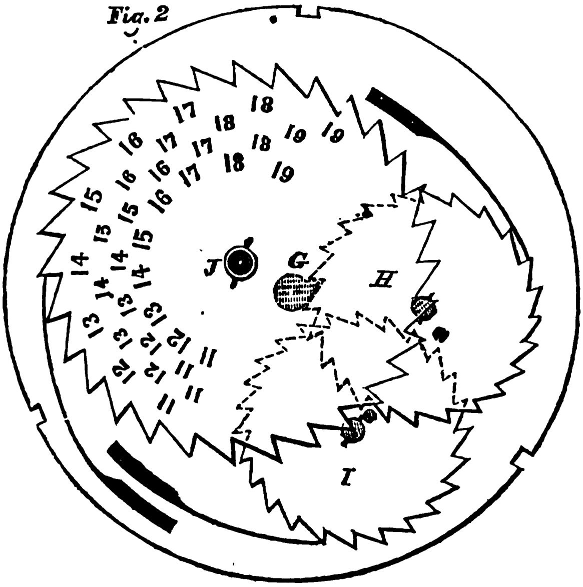


Fig. 2



IMPROVED ROAD MEASURE.

The annexed figures represent a new odometer for measuring the distance which a carriage travels, invented by F. S. Coburn, of Ipswich, Mass., who has taken measures to secure a patent.

Fig. 1 is a full sized edge view of the odometer. Fig. 2 is an inside view showing the toothed wheels. Fig. 3 is a view of the odometer weight, E, and fig. 4 is the dial of the odometer. This small instrument may be attached to a carriage in fifteen minutes. A cover slides over the dial, which cannot be opened without a key. It is made to turn with the hub of the carriage. The cost is trifling, and the manufacture may be a source of considerable profit to the mechanic, and a great security to the keepers of stables and others. In the inside of this odometer, which is a small box, the weight, E, is suspended on a stud or small shaft, and it will be observed that it always hangs perpendicularly while the odometer revolves with the axle. Upon this principle of action the whole of the wheels are operated. On the small stud on which E is hung, is the ratchet wheel in fig. 3, into which the ratchet, F, takes, which moves one notch every revolution, but the ratchet, F, by passing over the teeth of the small wheel, fig. 3, when the carriage is backing, allows the weight to move freely, and consequently there is no registering. The motion imparted in one direction by the weight to the shaft, G, moves the wheel, H, fig. 2, one tooth every revolution of the odometer, and every revolution of wheel, H, moves the wheel, I, (which should be set with its ratchet in a contrary direction,) one tooth, and this wheel, I, moves the one, J, which is the dial plate, and an opening in the case, fig. 4, shows it with the miles marked out. The dial is divided so as to be applied to wheels of different sizes. This odometer is small and neat; the figures represent one of full size which has been used repeatedly. It will be observed that the wheels are simply moved on the clock-work principle of gearing to reduce the revolutions from the first to the last, which registers the miles; the whole operations being dependent upon the suspended balance weight E. The instrument is neat and simple, and is very convenient. There are but few persons who go out with a carriage but would like to be able to tell the distance they have traveled when they return, and yet there is no way of doing this but by such an instrument. With turning to the one side and the other on a road—turning out and turning in on the track—the mile stones are no guides for indicating the distance traveled; the odometer alone is the true tell-tale. An odometer is the same as the tell-tale on the steam-engine, without which no steamship navigates the ocean. We hope such instruments will soon come into more general use.

Fig. 3

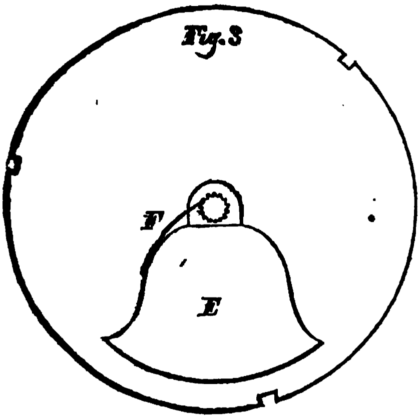
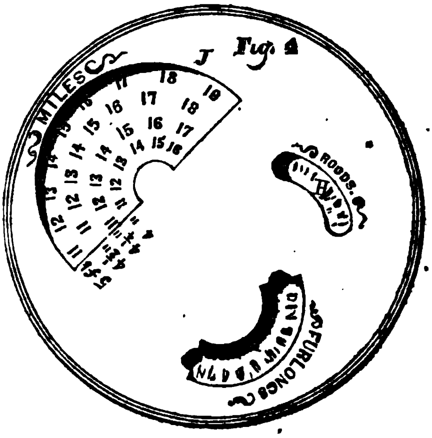


Fig. 4



More information about this one may be obtained by letter addressed to Mr. Coburn at Ipswich.

AMERICAN PATENTS.

Gwynne's Centrifugal Pump for Raising Sunk Ships.—The following letter from the owners of a ship sunk in the Missouri is good practical testimony to the value of this pump for the heavy work of raising vessels: "The Ironton struck a large submerged rock on the Missouri river, eighty-five miles above St. Louis, last month, and filled in about forty minutes, and sunk in about ten feet water. She was somewhat listed, and one guard and part of her deck was just out of water, while the other guard had some three or four feet of water over it. We sent one of our steam diving-bell boats (the '*Submarine*, No. 6,) to the wreck, where she arrived on Sunday, at dark. The next morning, while part of her crew were adjusting the suction-hose, (twenty-one inches in diameter,) our carpenters curbed off the hatches, and by 10 o'clock A. M., steam being up, we started the pump, and *in less than ten minutes* the water was so low that the suction-pipe took air, the water being only seven or eight inches deep on her floor timbers. The pump kept the water down until the carpenters succeeded in bulk-heading or partitioning off the break in her hull, and before dark the Ironton was safely floating. Steam was raised on her, and she was brought down to this city, where she has been docked. The pumping engine used on this occasion was one of your pattern, called B. No. 3; and some idea of its power may be inferred from the fact, that we did not stop the break at all in her hull before we pumped the water out of her. The dock showed the damage to be crushing in her larboard knuckle for twenty feet. The planks were completely shattered for this distance, and about thirty inches in width; and every timber, futtock, and her knuckle kelson in this space, were broken in. The tonnage of the Ironton is about one hundred and fifty tons, We estimated the discharge of the pump at about five hundred barrels per minute. The stream from it was ten inches deep, thirty-four inches wide, and ran at the rate of ten miles per hour, as we ascertained by a light paddle-wheel made for the purpose.—Eads & Nelson."

Machine-made Watches.—Some five years since, Messrs. Howard & Davis, in connection with Mr. A. L. Dennison, commenced a branch of this business in Roxbury, and though the most serious obstacles were in the way, they have persevered, slowly gaining knowledge by experience, and slowly attaining the object of their desires. The want of machinery, and the inexperience of laborers, have been great drawbacks; but they have gradually overcome these, and have now every convenience for the successful prosecution of their business. Their establishment in Roxbury was so surrounded by dusty localities, that it was found impossible to obtain perfection in works which were liable to this inconvenience, and a location for a building was therefore selected in Waltham, which is most admirably adapted to the purpose. The building, occupying a third of an acre, is a curiosity in itself, for it is the first structure erected in this vicinity of the "gravel wall," or "concrete material," which has been brought to public notice by Mr. O. S. Fowler. The concrete consists simply of limstones and sand, mixed as we do mortar, and then, by a simple process, piled up in layers, which becomes hard, and in the lapse of years is as solid as stone. The building, thus constructed at an expense of one-third of what it would cost to erect a brick edifice, and which is comparatively fire-proof, has stood the cold of the present severe winter, and established, beyond a doubt, its adaptability to ordinary uses. The manufactory at Waltham is a two-story building, built in the form of a square. Mr. Dennison, assisted by Mr. Stratton, superintends the works, and a twelve-horse engine furnishes the motive power for the machinery, heats the entire building, and carries from the river water into the reservoir, which supplies every part of the building with water. The different departments are separated, and each gang of mechanics has a distinct portion of the watch to manufacture. In one room the plate is cut, in another the jewels are reduced to a proper size, while the second hands, minute hands, the jewel screws, the wheels, the springs, the cases, the engraving, and the polishing, require each a distinct process, in which different classes of operatives are engaged. The operatives number at present about fifty, a quarter of whom are females, who are found well adapted to the business, and it is a fact worthy of note, that these American watches are the product of American operatives. In Locle, and other Swiss towns, where watches are made, the parts are manufactured in the cottages of the workmen, and are then carried to head-quarters, and put together; little machinery is used; here under one roof the watch is completed, by the aid of machinery, and less skilful hands. In a few months, when under full blast, at the strike of each hour, it is expected that a watch will be finished, that is, twelve per day. The cost, of course depends upon the style of the cases; those in gold will range, at retail, from 75 to 100 dols., and those in silver, from 30 to 40 dols. The Company intend manufacturing large quantities of watches of the hunting style. Parts of watches, screws, hands, wheels, are also neatly put up on cards, and are much sought after by the trade.

THE "LONDON" LOCOMOTIVE ABOVE NIAGARA.—The great subject of conversation in the West just now, is the passage of the "London" locomotive over the gorge of Niagara, and the name of the great metropolis was never in prouder remembrance than when borne, as now upon the fabric that testified almost man's highest excellence in bold art. The bridge settled just half an inch when the locomotive was at the center, for the brave men who controlled the starting bar paused in the very mid-river. Thus arriving at the line where the state and the colony meet, the flags of the two nations were waved, the scarlet and the blue fluttering in the exultation of those who there did homage to the blended sovereignty. The bridge is built so that it rises arch-like in the center. The deflection was no greater than was anticipated. There are two tracks—indeed, three, on the bridge; the 4-8½ of the New-York Central, the five feet of the Great Western, and by a fifth rail the New-York and Erie (continued by the Canandaigua road) also can transport freight or humanity over. There were six passengers or persons on this boldest of all locomotives, and by a measure of justice seldom wrought out in bold enterprises, all were represented, as well the man who furnished the means as he who produced the skill necessary. There is a good omen in the fact, that the crossing was first done from the Canada side over to the American, the sons of St. George will feel justified at grouping the two recollections, that, as an English steamer first made regular communication across the sea, it was an English locomotive that has first made this thrilling transit over the Gulf. Far away beneath, so far that the heavy wave scarce shows its swelling, rushed the Niagara, and the shrill shriek of triumph the "London" sent forth as it passed over the chasm was heard beyond the cataract itself.

THE AMERICAN PAPER MANUFACTURE.—There are in the United States 750 paper mills in actual operation, having 3000 engines, and producing in the year 270,000,000 pounds of paper, which is worth at 10 cents per pound, $27,000,000 dollars. To produce this quantity of paper 405,000,000 pounds of rags are required, 1½ pounds of rags being necessary to make one pound of paper. The value of these rags at 4 cents per pound is 16,200,000 dollars. The cost of labor is 1¼ cent upon each pound of paper manufactured, and is therefore 3,375,000 dollars. The cost of labor and rags united, is 19,575,000 dollars a year. The cost of manufacturing, aside from labor and rags, is 4,050,000 dollars, which makes the total cost 23,625,000 dollars of manufacturing paper, worth 27,000,000 dollars. We import rags for this manufacture from 26 different countries, and the amount in 1853 was 22,766,000 lbs., worth 982,837 dollars. Italy is the greatest source of supply, being more than one-fifth of the whole amount, but the supply has been gradually falling off every year. From England we imported 2,666,005 pounds in 1853. The cost of imported rags has been as follows:—1850, 3 61-100 cents; 1851, 3 46-100 cents; 1852, 3 42-100 cents; 1853, 3 46-100 cents. The consumption of paper in the United States is equal to that of England and France together.—*Boston Post.*

ENGLISH PATENTS.

PROTECTION OF THE WESTMINSTER PALACE FROM LIGHTNING.—The Parliamentary estimates for the year contain a charge of £2314 for securing the new houses of Parliament from lightning, backed by a very able report on the subject by Sir W. Snow Harris. That great authority on this important subject very clearly and properly exposes the popular error of attributing an attractive power to lightning-rods. It is proved by a most extensive induction of facts, and a large generalization in the application of metallic conductors, that metallic substances have not exclusively in themselves any more attractive influence for the agency of lightning than other kinds of common matter; but that, on the contrary, by confining and restraining the electrical discharge within a very narrow limit, the application of a small rod, or wire of metal to a given portion of a building is in reality highly objectionable. Besides, the application of an ordinary lightning-rod is of a very partial character. It has small electrical capacity, and is very often knocked to pieces by heavy discharges of lightning. Last June, Ealing church was struck by lightning; the small conductor attached to the tower was partially fused, and damage ensued. So again, in July, a church at Astbury was struck, and the small conductor fused in several places, the discharge dividing on the body of the church, and displacing and shivering several stones. In Her Majesty's navy, conductors of this description have been repeatedly knocked in pieces by lightning.

To secure such a building as the new palace at Westminster against lightning, Sir Snow Harris considers it requisite to complete the general conductibility of the whole mass, and so bring it into that passive or non-resisting state which it would assume in respect of the electrical discharge, supposing the whole were a complete mass of metal. By this means a discharge of lightning, in striking upon any given point of the building, would have, through the instrumentality of capacious electrical conductors, unlimited room for expansion upon the surface of the earth in all directions, to which, by a law of nature, the discharge is determined. In fact, what is called lightning is the evidence of some occult power of nature, forcing a path through substances which offer greater or less resistance to its progress; such, among the former, as atmospheric air, vitreous and resinous bodies, dry vegetable substances, and such like. In the case of such bodies, a powerful evolution of light and heat attends its course, together with irresistible expansive and disruptive force, by which the most solid and compact structures are rent asunder; whereas, in finding a path through substances which offer comparatively little resistance to its course, this explosive form of action, which we call lightning, becomes transformed into a harmless and unseen current. Hence the great protective influence of a capacious and general system of conduction, such as that just adverted to, which does not restrict the discharge to a given partial and narrow path, but is so circumstanced that lightning, striking anywhere upon buildings, cannot enter upon any circuit, of which the large capacious lines of conduction do not form a part.

MILES' HYDROSTATIC RAILWAY BRAKE.—The Shrewsbury and Hereford Railway has just been the scene of an interesting trial of this invention under the auspices of several eminent railway authorities and men of science. The testing train left the Shrewsbury station at 12.30, arrived at the city at 2.40

stopping at the usual stations on its way. The patent break alone was used during the journey, and upon the arrival of the train at this station, a number of experiments were tried upon different portions of railway, principally to ascertain the distance and time in which a train could be arrested. Notwithstanding the usual drawbacks to working all new inventions, the train was easily stopped, when going forty miles per hour, in 300 yards, the usual distance with the ordinary brakes being about 1750 yards. Colonel Kennedy and other gentlemen, who tried these tests, expressed a strong opinion that, with the slight enlargement of the tender cylinder, pointed out by Mr. Miles, a train would be stopped with ease in three yards to the mile; that is to say, a train going forty miles an hour would stop in 120 yards. The experimental train left this city, with the usual mails and passengers, at 6.45, and arrived at Shrewsbury at 9.15, using the patent brake during its course, still proving itself most effective. The brakes themselves are upon the usual principle, but are placed upon every carriage, instead of on one or two only. A cylinder is fixed under the carriage, 4½ inches diameter and 3 inches stroke; and in this cylinder is fitted a solid piston, the rod of which is attached to the lever of the brake. Into each side of the cylinder is screwed an iron tube, one inch in diameter, and terminating, at each end of the carriage with a joint of a novel character. When the carriages are connected, the tubes are made continuous by inserting into these joints a flexible tube between each carriage; and when the engine is attached to the train, that is also connected by a flexible tube, leading into tubes fixed in the bottom of the tender, which tubes are merely for the purpose of reducing the temperature of the water used in applying the brakes. The boiler is fitted with a stop-cock near the starting lever, and from this cock is a tube connected to the tubes in the tender. When a train is made up, and the engine attached, a cock inside the tender is opened, and the tubes throughout the train are allowed to fill themselves with water; water being only compressable to the extent of one inch in 15,000, is always ready to be acted upon at the moment. At the present day, locomotives are worked at a pressure of from 100 to 150 lbs., per square inch; but for example's sake, we will take the lowest figure, therefore, with the cylinders before described, a power of 1500 lbs. is given to each brake, no matter what may be the number of carriages in the train. The cylinder to work the tender brake is 4½ inches diameter, with a 6 inch stroke and gives a force of 3000 lbs. The mode of bringing the brakes into use is this: The engine driver shuts off his steam, opens the cock named in boiler, and in one second, the whole of the brakes are on the wheels, and are taken off by the driver shutting the cock in the boiler, and opening the one in the tender.

Scott's Elastic Action Three-Wheel Brougham.—Mr. Michael Scott, C. E., who has devoted considerable attention to the perfecting of the details of vehicular contrivances—more especially the parts relating to the springs and bearings—has submitted to us a plan of "three-wheel Brougham," of very suggestive character. This carriage is designed for affording superior facility of motion, with ease and accommodation to the occupants, and means of resisting the wear and tear of traffic. It has two wheels behind, and a single central wheel in front, as high or even higher than the hind pair. This lightens the draught and simplifies the under frame-work. The driver's seat occupies the place usually assigned to the rumble, directly over the hind wheels, so that the reins stretch over the body of the carriage, as in the Hansom. This obviously leaves the front view quite open and free. In arranging the details of the bearing actions, Mr. Scott uses a "semi-circular spring" the extreme end of which, together with the spring blocks, are wholly disconnected—producing great elasticity. His "elastic nave, is also a further means of obtaining an easy action. The mortice beds, or the portions on which the inserted wooden spoke ends bear, are cushioned with India-rubber. India-rubber is also used for encircling the felloes of the wheel, either in strips as an independent tyre, or in small blocks or cushions between the wooden felloe and the ordinary metal tyre. The inventor has contrived to elasticate various other rigid parts of the carriage, even the axle itself, as well as the shoes of the horses.

THE FRENCH BEET SUGAR MANUFACTURE.—There are now at work in France 208 beet sugar manufactories, being fewer by 95 than were in operation last year at the same time. The quantity of sugar manufactured, including 7,870,605 kilogrammes, lying over since 1854, was 43,229,798 kilogrammes, or 30,921,340 less than last season; and that sold for consumption, or deposited in the Government bonded stores, 39,659,690 kilogrammes, being a falling off of 23,591,362 kilogrammes.

PURIFYING RANCID OIL.—It has recently been discovered in France, that nitric ether, commonly known as "spirits of nitre," has a powerful effect in clearing and deodorising impure oils. A small quantity mixed with the crude oil carries off all the disagreeable odor, whilst, by subsequently warming the oil so treated, the spirituous ingredient is renewed, and the oil becomes sweet and limpid. A few drops of nitric ether added to the contents of an oil bottle, will act as a constant preventive to rancidity.

LOGAN'S PORTABLE WINCH FOR SHIPBUILDERS.—This winch is constructed so that it can be fixed in any position, and may be adjusted with facility to the work to be performed. To this end the winch is formed with a sole plate of malleable iron, and is fitted upon an under sole plate, upon which it turns by means of a swivel joint. The under sole plate is formed with clamps, or bent ends, by which it can be hung upon any fixture, as the frames, plates, or other part of a ship, or of a boiler, or other structure. The whole apparatus can be carried by one man, and can be moved along the plates, or other part on which it is hung, at pleasure. The two sole plates are formed with regularly pitched holes, arranged so that those in one plate may be brought fairly opposite to those in the other. Thus, on the winch being adjusted, it can be fixed in position by means of pins passed through the holes in the two plates. This apparatus will be of great utility in the construction of iron ships, boilers, and all other structures in which heavy weights have to be lifted and moved about. Thus the winch can always be conveniently placed, and the tackle can be fixed immediately over the plate, frame, or other article to be lifted, whilst it is immaterial in what position the winch is fixed, as the swivel joint arrangement gives it the power of accurately adjusting itself to the work it has to perform.

LOCOMOTIVE EXPENSES AND STATISTICS.—The total cost of locomotive power, including repairs, on the Caledonian Railway, is 8d. per train mile, and including the working repairs of waggon and carriage stock, 10·08d. per train mile. The average number of engines in steam during the past half-year has been 90, and the number of train miles run, 8,532 per day. The average number of engines in working order has been 118, repairing 20, and renewing 7, together 145. The passenger trains averaged 7·19 carriages, and the goods trains 22·65 waggons.

NEW BOOKS.

Sabbath Morning Readings on the Old Testament. Book of Leviticus. By Rev. John Cumming. Boston: John P. Jewett & Co. 1855.

Our readers know the high estimate with which we regard the works of this learned divine. The volume before us is not exceeded in its interest by any of its predecessors. It is just the thing for Sunday-school teachers and Bible classes.

Sabbath Evening Readings on the New Testament. St. Luke. By the same.

This is a full, plain, practical exposition of the Gospel, as the former volumes we have described are of the Pentateuch. No Sabbath-school teacher should be without it. It is also just what is wanted in our "mutual classes," which, by the way, ought to be multiplied a hundred fold.

These books are for sale by Jewett & Proctor, Cincinnati; and Sheldon, Lamport & Blakeman, New-York.

The New-York Quarterly. July, 1855. Jas. G. Reed, Publisher.

We seldom see this work, but what we have seen gives us a desire to see more. The articles in this number are well written, judicious, instructive and entertaining. What more is to be desired? We commend it to the reading community as one which they should sustain for their own sakes. It is devoted to Science, Philosophy, Literature and the interests of our united country, and is recommended by the most eminent literary gentlemen of New-York. Terms, $3 a year; 4 copies, $10.

Harpers' New Monthly for August

Is on our table, in anticipation of its issue, and is elegantly executed and numerously illustrated. The topics are of unusual interest.

Doesticks. What he says. By Philander Doesticks, P. B. New-York: Edward Livermore. 1855.

This republication of newspaper articles "claims nothing," says the "manufacturer," and "amounts to nothing;" "some are bad, some are worse." The author is essentially correct, though there are now and then genuine scintillations of wit, and many good strikes of true humor. But like "Hodge's razors, it was made to sell."

Putnam's Monthly for August.

This is a very good number. The contents are as follows: Turkish Wars of Former Times, My Lost Youth, The Bell Tower, Unknown Tongues, (The Language of Animals,) About Babies, Life among the Mormons, The River Fisheries of North America, (The Artificial Propagation of Fish,) Cape Cod, First Friendship, Living in the Country, Sir John Suckling, Twice Married, (Continued,) The Armies of Europe, Editorial Notes, etc., etc, American Literature and Reprints. Dix & Edwards, Publishers, 10 Park Place.

Household Words for August, by the same publishers,

Is just what is wanted for an after-dinner book.

The Knickerbocker

Is also on our table; an old friend to whose calls we have not been accustomed of late. We greet him as a highly esteemed and well-established friend, of high literary merit, and well deserving a prominent place among the standard literary works of the day.

It is edited still by the able and popular writer, Louis Gaylord Clark. Published by Samuel Hueston, 348 Broadway.

NEW MUSIC.

WM. HALL & SON have an unusual proportion of pieces of a high order in their late issues. Among the songs that we have especially noticed, are

SWEET KATE OF NORTON VALE. By GEO. SIMPSON.

THE music is very sweet, and the words by Edward Farmer as good as they can be, coming from a lover who has lost his heart.

COME HASTE THEE HOME. Ballad by A. C. FARNHAM.

MUSIC not very unlike the former in its general character, and equally good.

I WANT A WIFE; OR, THE BACHELOR'S INVITATION. Melody by WALLACE, adapted to words of Clarence Rawlings by Chas. Jarvis.

WHY is it that bachelors can't write their own words, but have to go to spinsters for this service in such circumstances?

HOPE ON, HOPE EVER. By CHAS. JARVIS, to words of L. W. Glenn.

A VERY pretty song, with a very pretty little chorus to it.

AMONG the instrumental pieces are

MARIA POLKA MAZURKA. By JOSEPH ARCHER. Very fine. And MEYER POLKA, fantasie, by LEOPOLD DE MEYER. Quite as good in its way; and both quite easy for those of only tolerable skill on the piano-forte.

List of Patents Issued

FROM JUNE 5, 1855, TO JULY 3, 1855.

Wm. Adamson, of Philadelphia, improvement in sand-paper cutting machines.

E. Allen, Worcester, improvement in fire arms.

A. C. Billings and B. H. Ruggles, Palmer, Mass., improved mode of riveting shingles.

Addison P. Brown, Brattleboro, self-regulating wind-mills.

Ephraim Brown, Lowell, burglar's alarm.

Adolph and Phenix Brown, New-York, machine for boxing and turning wood.

Gardner A. Bruce, Mechanicsburg, Ill., improvement in harvester reels.

Sylvester Colburn, Ansonia, Conn., improvement in grain and grass harvesters.

Julius C. Dickey, Saratoga Springs, improved mill steps.

Robert D. Dwyer, Richmond, Va., improvement in attachments for lightning rods.

Edmund Field, Greenwich, Conn., improvement in locking latches for doors.

Geo. Finley, Collins Township, Pa., improvement in machines for washing sand.

Thomas Fowler, Cohoes, improvement in knitting machines.

Charles Folson, Cambridge, Mass., improved book clasp.

H. H. Fultz, Lexington, Miss., improved horse power.

Jacob Harshman, Dayton, O., improvement in steam boilers.

Isaac R. Hartwell, Woodstock, Vt., machine for cutting cavities spherical, elipsadiol, etc.

James D. Hayes, Mt. Morris, Ill., improvement in lard lamps.

Edmund Hayes, Wheeling, and Morgan Hayes, Washington, Pa., improved apparatus for setting boxes for carriage tops.

Birdsill Holby, Seneca Falls, method of regulating the issue apertures, and of suspending turbine wheels.

Wm. H. Hovey, of Springfield, Mass., improvement in grain and grass harvesters.

M. G. Hubbard, New-York, method of hanging plane stocks and their mouth pieces.

Friedrich W. Hoffman, and Chas W. Gustay, Fordham, New-York, improvement in machines for making rivets.

James and Wylie Littie, Princeton, Indiana, improvement in attaching the connecting bar to the cutters of harvesters.

John Loudon and Otto Ahlstrom, New-York, improvement in screw fastenings.

Jean Pierre Molliere, Lyons, France, improvement in sewing machines. Patented in France, May 30, 1854.

Milo Peck, New-Haven, improvement in trip-hammers.

Paul Peckham, Petersham, Mass., machine for dressing conical tapering surfaces.

Samuel Rockafellow, Goatsville, Pa., improvement in mowing machines.

John J. Rollow, Fredericksburg, improvement in machines for shucking and shelling corn.

A. H. Rowand, Alleghany City, machine for feeding sheets of paper to printing presses.

Edmund Q. Smith, Cincinnati, method of cutting straight or curved mortices.

Wm. Stinson, Georgetown, Pa., improvement in corn planters.

Samuel T. Thomas, Lawrence, Mass., improvement in looms.

Hiram Tucker, Cambridgeport, improvement in spring bed bottoms.

T. J. Van Benschoten, Poughkeepsie, improvement in horse collar blocks.

John U. Wallis, Dansville, N. Y., improvement in paddle wheels.

Nicholas Whitehall, Attica, Ind., improvement in plows.

Geo. B. Wilson, Elizabeth, Pa., improvement in cooling and drying flour.

Robert Wilson, Columbus City, Iowa, improvement in apparatus for heating feed water to steam boilers.

Robert Wilson, Columbus City, Iowa, improvement in sewing machines.

Edward Brown, Waterbury, Conn., assignor to the Scoville Manufacturing Company, of same place, machine for beveling and polishing the inner edges of daguerreotype fac plates, or "mats.

Wm. McDonald, New-York, assignor to R. Hoe & Co., of the same place, machine for mitreing printers' rules.

James Curtis and Samuel Hoard, Chicago, Ill., water metre.

Augustus M. Clover, Waterborough, S. C., improvement in cotton presses.

John Power, Boston, cork machines.

George W. Stedman, Vienna, N. J., improvement in sewing machines.

Thomas Silver, Philadelphia, improvement in marine steam engine governors.

Thomas C. Clarke, Camden, N. J., filter.

Thomas C. Clarke, Camden, N. J. hydrant filter.

Chas. M. Day, N. Y., feed motion for saw mills, etc.

George L. Dulany, Mount Jackson, Va., improvement in mill bushes.

Elisha Fitzgerald, New-York, improvement in buoys for raising sunken vessels.

Calvin Fletcher, Cincinnati, improvement in supplying furnaces with hot air.

Wm. S. Ford, N. Y., improvement in window sashes.

Wm D. Greenleaf, Washington, N. H., improvement in fastening scythes to snaths.

Florian Hesz, Cincinnati, improvement in bedsteds.

M. J. Kennedy, Fallston, Pa., machine for joining staves.

John C. Kine, Pittsburgh, improvement in door locks.

James J. McComb, New-Orleans, improvement in arrangement of bumpers for self-acting bar brakes.

Fred'k Newbury, Albany, improvement in revolving fire arms.

Isaac M. Newcomb, Eden, Vt., sewing machine.

Jos. H. Penny and Thomas B. Rogers, New-York, improvement in propellers. Patented in England, June 14, 1853.

John Plumbe, San Francisco, improvement in cutting clay into bricks.

Edgar A. Robbins, Rochester, method of tuning accordeons.

Geo. H. Swan, Bridgeport, stave machine.

Orson W. Stow, Planstville, Ct., improvement in sheet meltal folding machines.

Edward A. Sterry, Norwich Town, Ct., faucet.

Henry W. Smith, Boston, improved coupling for organs and melodeons.

Christopher Sharps and George E. Adriance, Hector, tenoning machine.

Jos. C. Silroy, New-Orleans, improvement in door locks.

Hosea D. Searles, Rockford, Ill., improvement in guard rails of railroads, to be used with pronged cow-catchers.

Samuel Taylor, Petersham, Mass, improvement in plank roofs for buildings.

Wm. R. Thompson, Cleveland, improvement in heating wrought iron wheels for forging.

Nathaniel Waterman, Boston, portable floating filter.

Sheldon Warner, Enfield, Mass., curvilinear sawing machine.

Wm. D. Beaumont, Mobile, improvement in artificial fuel.

Wm. Gee, New-York, improvement in soda water generators.

Aug. M. Glover, Waterborough, S. C., improvement in the buckets of paddle-wheels.

John Grout, Hocking City, Ohio, improved self-acting cotton press.

Geo. King, Farmville, Va., improvement in pressing tobacco in plugs.

Jos. Montgomery, Lancaster, Pa., and James Montgomery, Baltimore, improvement in wheat fans.

Joan Pierre Molliere, Lyons, France, improved machine for cutting the edges of boot and shoe soles. Patentee in France, January 5, 1854.

T. J. W. Robertson, New-York, improvement in sewing machines.

Isaac M. Singer, New-York, improvement in sewing machines.

Chas. R. Webb, Phila., improvement in windmill.

Charles De Saxe, New-York, assignor to Thos. H. Bate, same place, improved surpentine spinner to catch fish.

Joel G. Northrop, Syracuse, assignor to James G. Mather, same place, improvement in printing presses.

Orson C. Phelps, Boston, assignor to Orson C. Phelps and John Holton, same place, improvement in metalic medium for filtering.

Joshua Turner, Jr., Charlestown, Mass., assignor to Asa Bennett, Boston, Mass., and Warren Covell, Debham, Mass., machine for ruling leather.

Caleb H. Griffin, Lynn, assignor to Caleb H. Griffin, and George W. Otis, same place, improvement in machine for cutting out boot and shoe soles.

John M. Wimley, Philadelphia, assignor to J. A. Shaw, same place, improvement in attaching gutta percha soles to boots and shoes.

Jos. Adams, Fairhaven Vt., improvement in stone sawing machines.

Horatio Allen, New-York, two motion con valves.

Avery Babbett, Auburn, machine for cutting irregular forms.

Uriah Bebee, Oakland, Mich., improvement in corn planters.

Henry Boynton, Hinesburgh, Vt., reciprocating railway propeller.

John H. Cocke, Bremo, Va., improvement in railroad car seats.

S. Park Coon, Milwaukee, improvement in apparatus for replacing railroad cars upon the track.

Richard F. Cook, Troy, Ala., improved fish hook.

L. G. Evans, Spring Hill, Ala., improvement in plows.

Jas. P. Fennell, Philadelphia, improved coal screens.

Geo. Fetter and Jos. L. Pennock, of Holmesburg, Pa., machine for cutting the inside hole of shovel handles

Arasmus French, Waterbury, Ct., improvement in springs for hinges, etc.

Abram C. Fanston, West Philadelphia, improvement in scaffolds.

Robert R. Gray, Crawfordsville, Ind., improved expanding block for horse collars.

Stephen Gorton and Francis Morris, Crawford county, Pa., improved stump machine.

Geo. W. Hildreth, Lockport, improved mode of hanging bells.

Orris C. Hill, Malone, improvement in doors.

Robert M. Kerrison, Philadelphia, improved piano forte action.

John L. Kite, Philadelphia, improved hot air furnaces

Joseph H. Marston, Philadelphia, apparatus for taking stereoscopic protographs.

Felix Miller, New-York, improvement in fastenings for carpets.

Jeans Pierre Molliere, Lyons, France, improved machine for cutting leather into strips, for boot and shoe soles and heels. Patented in France, July 22, 1853.

Jonah Newton, New York, method of scouring cutters to rotary dises.

Royal Parce, Pitcher, N. Y., machine for cutting locks and tapering ends of wooden hoops.

W. D. Parker, New-York, improved ice-house.

David Pierce, Woodstock, Vt., machine for manufacturing wooden ware.

David and J. R. Pollack, Lancaster, Pa., fan blower.

Lovell T. Richardson, Worcester, socket handles for chisels.

John Richardson, Buckeyestown, Md., improvement in producing intermittent acceleration of motion, in harvesters, rakes, etc.

Harrison D. Reynolds, Pendleton, Ind., improvement in cleaners.

John W Russell, Springfield, Mass., improved chuck for turning eccentrics.

James Selby, Lancaster, Ohio, improvement in seed drills.

Albert S. Southworth and Josiah J. Hawes, Boston, apparatus for moving stereoscopic pictures.

Sylvester Stevens, Boston, improvement in rotary engines.

Peter Ten Eyck, New-York, improved self acting brake for vehicles.

William Thompson, Nashville, self-operating circular gate.

Levi Till, Sandusky, improved brick.

Charles F. Thomas, Taunton, improvement in steam boilers.

Albert M. Waterhouse, New-York, improvement in hose couplings.

Alva Worden, Ypsilanti, improvement in joints for stove pipes.

Jesse N. Bolles, Philadelphia, assignor to H. J. Ockerhausen, Baltimore, improvement in joints of pipes for artesian walls.

George L. Dulany, Mount Jackson, Va., assignor to Reuben Allen, Shenandoah county, Va., improved mill dress.

Thomas Hodgson, Brooklyn, assignor to Rob't L. Wright, New-York, improvement in the manufacture of artificial stone. Patented in England, May 9, 1854.

Abram and Chas. N. Clow, Port Byron, improvement in corn shellers.

Marvin S. Otis, Rochester, assignor to Charles Rumley, of same place, improvement in machine for boring cylinders.

Isaac H. Steer, Winchester, Va., assignor to Henry Carter, Pittsburgh, improvement in making nuts. Ante-dated December 19, 1854.

Wm. and Wm. F. Boyd, Watertown, Mass., improvement in bridle winkles.

Chas. B. Bristol, Naugatuck, Conn., improved wrench.

Martin Croke, New-York, improvement in weather strips for doors.

Henry Clayton, Dorset Square, England, improvement in brick and tile machines. English patent Dec. 13, 1852.

Daniel N. Zanzack, Salem, Mass., improved mode of hanging window sashes.

Samuel Eakins, Philadelphia, improvement in ice pitchers.

Moore R. Fletcher, (late) of Concord, for tidal alarm apparatus.

Jonas S. Halsted and Cornelius J. Ackerman, New-York, for carpenter's mitre and bevel square.

Chas. S. Harris, Holyoke, for balance valve.

A. V. Hough, Green Castle, Ind., improvement in brick machines.

Chas. H. Johnson, Boston, improved in gas burners.

R. A. L. McCurdy, Sabine Parish, La., improvement in cotton gins.

Peter Moody, Indianapolis, improvement in horse collar blocks.

Isaac M. Wade, Clinton, Mich., improvement in churns.

Wm. Wiler and Lucien Moss., Philadelphia, improved gas-lighter.

Moses D. Wells, Morgantown, Va., improvement in seeding machines.

Bernard O. Bryan, Marietta, Pa., improvement in machines for cleaning ore.

Henry Peckham, King's Ferry, improvement in straw cutters.

Abraham Powell, Jr., Mare Island, Cal., improved fuse stock for bomb shells.

Elisha E. Rice, Hallowell, Me., improvement in railroad car brake.

Alfred A. Starr, New-York, improved adjuster of window blinds.

Lafayette Stephens and Solomon B. Elithrop, Elmira, improvement in window blinds, doors, etc.

Joseph Sykes, Mercer, Pa., for wheelwrights' guide mandrel.

Chas. Taylor, McKeesport, Pa., improvement in machines for cutting grain, grass, etc.

Reuben H. Thompson, Buffalo, improvement in hand machines for making boots and shoes.

John H. Tuck, Pall Mall, England, improvements in packing for stuffing boxes.

Thos. Champion, Washington, D. C., improved steam boiler furnace.

Stephen Hull, Poughkeepsie, improvement in attaching the raker's seat to harvesters.

John H. Manny, Rockford, Ill., improvement in the cutters of harvesters.

John H. Manny, Rockford, Ill., improvement in the guard fingers of harvesters.

Oren Stoddard, Busti, N. Y., improvement in corn planters, to be operated by hand.

Jacob Lenneff, Philadelphia, improvement in machines for making harness for looms.

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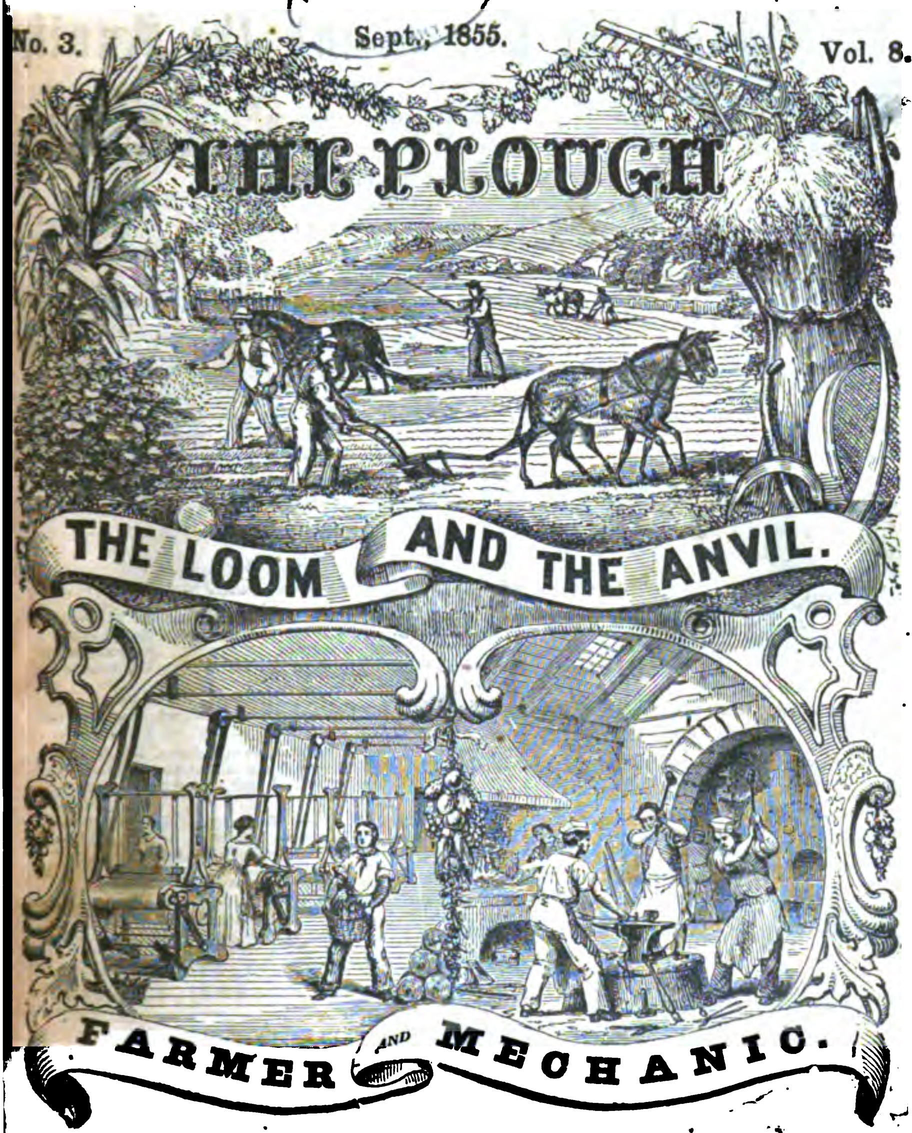
HARVARD COLLEGE

No. 3. Sept., 1855. Vol. 8.


THE PLOUGH
THE LOOM AND THE ANVIL.
FARMER AND MECHANIC.

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POSTAGE.

THE PLOUGH, THE LOOM, AND THE ANVIL to actual subscribers is chargeable in any part of the United States, when paid quarterly or yearly in advance, at only 12 Cents per Year.

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1863, July 8.

The Plough, the Loom, and the Anvil.

Vol. VIII. SEPTEMBER, 1855. No. 3.

NORTHERN AND SOUTHERN INDUSTRY.

The North and the South.—From the very able and elaborately prepared article which opens *De Bow's Review* for April, we copy the following paragraph:

"Let us now compare the present condition of a northern and southern parish, each containing 100 families of six persons. In the former we shall find some three of its families who derive the whole or part of their income directly from the United States Treasury, while there is no such family in the latter, if it be like the majority of the slave-holding communities of the same size. If the northern parish happen to be on the coast, every bay, and inlet, and creek has been carefully surveyed by the federal government, and lights shine every twenty odd miles along the shore, to protect its mariners. In the southern parish, the vessels must find their way through the shoals as best they can, for there has been no survey, and no warning beacon cheers the storm for hundreds of miles. The Union spends ten dollars in cutting roads and canals, cleaning rivers and constructing harbors in the northern parish, where it spends one in the southern. And to secure these benefits the parish in the free States pays in taxes $388, and receives back in disbursements $1360; while the same number of families in the slave States pay $1620, and receive only $270. The excess of $1350 goes to be distributed amongst the northern parishes. This is not all, for the hundred families of the southern neighborhood are deprived of the profits of using over $8000 of their own cotton, tobacco, grain, etc., in order to let the hundred northern families use over $5000 of it a whole year free of charge. When the two parishes join in war against a common foe, the southern must send five times as many soldiers, and pay five times as much of the expenses; and yet when the conquest is over, it must suffer its partner to seize all the conquests, and at the same time to kidnap its property and attack its domestic peace. Can insolence—can tyranny go further? Or can history show a more degraded community than the southern must be if it submits?"

In our number for May we entered upon an examination of certain statements made by this able writer in *De Bow's Review*. We then noted, for future comment, which has accidentally laid in our drawer till the present moment. We now propose to make it the basis of a few practical suggestions, and a perusal of it will show that if we speak plainly, we are not without precedent. We shall endeavor to be at least logical and courteous.

We have no doubt that a careful study of the subject, with the facts that are within the reach of most persons, would furnish them with abundant data for a satisfactory solution of the problem here presented. A candid examination of the statistics we have presented in this journal, would furnish all the *material* necessary in such investigation.

It appears from this extract that for "every hundred families of six persons," that is, in every community of 600 inhabitants, at the North, we shall find three persons fed from the public crib, while "there is no such family in the latter, (the South) if it be like the majority of the slave-holding communities of the same size."

And why is there this difference? A visit to any one of such communities would furnish a ready answer. That community of 600 souls at the North lives chiefly by some mechanic trade. Each man labors, not for the production of goods to be used by himself and family, but for those who are remote from him. The products of his labor are sent abroad. Perhaps he is 100 or 200 miles from navigable waters, and all his goods are sent to the seaboard. This requires easy and cheap communication, and such communication is, of course, secured. The nature of their business requires an extensive correspondence, quite as much so as that of the merchant. Hence they make efforts to secure a mail route, and to insure success in their application, they show that the correspondence of the community *will pay the expense of a post-office and probably pay a profit to the government.* Doing this, they secure their post-office. The communication being easy and cheap, the expense of the post route is comparatively small, and these facilities for an increased business produce their legitimate effects. Such communities are established "through New-England" upon the average, perhaps, in every ten miles or so, along post routes, and frequently are much nearer than this, and they are seldom far from a route previously established. Let us give a striking illustration of this process, on a territory with which we are quite familiar. Worcester, Mass., and Providence, R. I., are two of the more important cities of the Eastern States, each containing a large population, and a large amount of wealth, and carrying on a very extensive business, requiring a prompt and frequent conveyance of the mail. The traveled route between them lies in the valley of the Blackstone river. And what are the features which could not fail to excite the wonder of a traveler for the first time passing over that route? He would scarcely find himself out of sight of "a factory" for the whole distance.

The suburbs of Providence are filled up with iron establishments of various sorts. Pawtucket, 4 miles from Providence, is a large "factory" village, and its smaller "factory" villages are scattered along a distance of some three miles. Lonsdale, "a factory village," is 7 miles from Providence. Woonsocket, another very large "factory village," is 16 miles from Providence. Waterford, little else beside a "factory village," is 18 miles. Blackstone, another "factory" village, is scarcely a half mile from Waterford. Millville is 20 miles, Uxbridge 25, Whitinsville is 26, Northbridge is 31, Farnum's Village is 33, Saundersville, in Grafton, is 34, Sutton is 35, and Milbury is 37 miles from Providence, and each of them is a "factory village," and the last is but 6 miles from Worcester, around which "factories" cluster on every side. The capital invested in these establishments is estimated by millions, and much of it is owned by the Superintendents living on the spot, and the work is done to a great extent by permanent residents in the village, who are a healthy and prosperous, intelligent and moral class of the community in which they live, supporting the institutions of religion, and schools, and lyceums, and probably reading 1000 pages, while a farming population of the same size would read 100. Why should NOT such communities have the facilities of a post-office? What "three" public functionaries are supported *for* (by?) them, we cannot guess. We could conjure up a second. If the *tax-gatherer* is "around," he will be very sure not to overlook these "factory villages." The third we cannot guess.

Now show us such communities at the South, who are refused such aid (?) from the general government. Comparatively few such villages are found there. Agriculture *vetoes*, beyond appeal or reversion, any considerable collection of people on small territories. Let the South establish her mechanical and manufacturing villages, and she too will have these and other *favors* from the "United States Treasury." Large plantations are even less favorable to such a state of things than are the small farms of the New-England States. Who does not see that such complaints as these, however aimed, are in fact, to be laid only at the door of the system which excludes denseness of population, which renders good roads or other ready communication very difficult and expensive, if not impossible, and by necessity excludes every condition which would favor the extension of mails and similar conveniences at the disposal of the general government?

The next topic of complaint is the comparative frequency of Light-houses, and it is perfectly obvious that this persistency in remaining a mere agricultural community, operates beyond the power of mere choice, in arranging this matter also.

Light-houses are usually placed in harbors frequented by shipping, or on dangerous points along the coast near such harbors. So far as security along rocky shores is concerned, probably our "factory villages" do not exert a very great influence in increasing the number of these structures. This must go to the account of "Geological Formations." We do not now think of a more appropriate title under which to enter these expenditures.

But as to the former, these little communities must take their share of responsibility. It is these which produce "merchandise." They bring into existence all the tools, and implements, and machines, and fabrics used by all sexes, of all classes, in all communities. Hence they affect very materially the amount of commerce, and they accordingly affect very considerably the size and the location of mercantile and commercial points or centers, and so far control the circumstances which occasion the necessity for such structures.

It is not merely a favorable location on the sea that creates a commercial city. A convenient harbor is, in fact, a minor consideration. Look at London. It is not near the sea. Look at Venice, standing on the sea, and yet her glory is gone, so far as the extent of her commerce is concerned, and this is the result solely or chiefly of the springing up, the creation of a new commerce by the energy and skill of the people of our own country—in other words, by Yankee enterprise. Look at New-Orleans, far from the sea, and difficult of access. Look all down our Atlantic coast, and it will not appear that our largest cities always have the superiority of others in this respect. Boston is more than 40 miles from the open sea. There must be material, and there must be individual energy, and with these, prosperous cities will increase and "Light-houses" or other commercial facilities will be DEMANDED, and will be secured. In the absence of these on the land, our pilots must give a wide berth to shoals and hidden rocks, just as a sparse population, away from great thoroughfares, must convey their own products a long distance and at great expense, to find a good market. All this is the fault of no one; it is simply the inevitable law of nature, over which parliaments and legislatures can have but a very limited control.

All the other distinctive differences, so earnestly set forth by this writer, result from the same and kindred causes. You cannot have the interest to expend where there is no principal, and equally true is it that where commercial pursuits are not fostered, where the social structure FORBIDS extensive manufacturers, whether of wood or iron, or cotton or wool, then the facilities, the conveniences, the profits, the wealth, the energy of character and the success which variety of pursuit alone can produce, are not to be expected. Nor are those who do enjoy them to be censured because they are not universal.

The statistics which we have published show that in mere agricultural districts, agricultural products are not more productive of income, than they are in such a territory as we find in the Northern States. Thus, while in New-England the "manufacturing, mining, and mechanic arts" produce an income of $102 00 to each person, and at the South only $13, the agricultural products of the South, PER ACRE, are only $1 03, while in New-England they are $1 76. This is stated by Mr. Tucker, and we do not doubt his accuracy.

Our learned friend, De Bow, in the census of 1850, also brings us to the same conclusion. The average value of land, *per acre*, in New-England, he estimates at $20 27, while in the Southern States he calls it $5 34, and this, too, in the older States of the Union.

How can there be any diversity of opinion on this subject with such admitted facts before us? And still the South ridicules the "factory" system of the North, and describes her operations in anything but flattering phraseology. True, they sometimes quote from some zealous writer living on Northern soil, though they often pervert and exaggerate; but those who live in New-England know many of these statements to be either absolutely false, or true only in certain limited localities. In such cities as Lowell, Lawrence, and Manchester, the female operatives are "separated from family influences," and parental watch; but there is a substitute by no means inoperative in the *esprit de corps*, which expels from their social circle every one who brings reproach upon it by offending against good morals. They are chiefly the daughters of farmers, well brought up, and strictly moral from habit and from principle; and many of them are well educated, competent to teach in schools, North or South, and thus in fact many do occupy one half the year, while they work in the factory the other half.

But this state of things exists only in a few large cities. Where there is one Lowell, there are a dozen Waterfords and Lonsdales, villages chiefly consisting of tenements built by the owner of the mills, or by the farmers and mechanics of the neighborhood. On these places, the dwelling is hired by the head of the family, while the children work in the mill. There no such separation of households is seen. Perhaps the father is also employed by the same parties. The house is rented in view of just this arrangement. The former occupant abandons, either because he can do better elsewhere, or because his children have married and he goes to live with them, or to the place of his fathers, and a new occupant is obtained for the dwelling, who can supply the help needed by the mill owner. Such establishments are scattered all over New-England, and if Lowell were as bad as the most zealous of the enemies of this system would make it, it would not even then be good evidence of what the great majority of factory villages are in New-England. Besides, superintendents often exert a most powerful influence in favor of good morals, in these more unfavorable circumstances. We remember that in one of these large cities, one of them, in conversing with ourself on this subject, once said, "I will give you $100 if you will tell me some new and innocent amusement, for our operatives after the hours of work." This remark shows the interest he felt in this direction, and with such men to manage the affairs of the company, there is comparatively little danger.

The largest assembly we ever saw convened in the Sabbath-school was in that same Lowell, so slandered by this writer, and the school consisted chiefly of female operatives belonging to the mills.

We can scarcely regard such remarks as we have alluded to, and which we have taken as our caption, as honestly made. There are evils inevitably resulting from the separation of family influences that are to be lamented, but sometimes such change is for the better. The daughter, who has been living in utter neglect or disregard of the institutions of religion, is thus brought under a better influence. We would not fear to hazard something on the statement, that a larger part of the entire mass of factory operatives in New-England, regularly and voluntarily attend Sabbath-schools than are to be found in any community of equal numbers and similar ages in the Southern States. If any one will give us the figures in any large district South, we will furnish them from the North, and bring this to a test.

No, such evils are not eating out the vitals of New-England. They are safe, reasonably safe in the matter of good morals, and they are growing richer every year. When this is equally true of the South, we will listen to arguments which go to show that agriculture, as a sole occupation, is the chief end of man, and that all forms of mechanical industry are but sources of unmixed evil.

But we have not yet reached the climax, "for the 100 families of the Southern neighborhood are deprived of the profits of using over $8000 of their own cotton, tobacco, grain, etc., in order to let the 100 Northern families use over $5000 of it a whole year free of charge." Well, this is a hard case. The North ought to be ashamed of themselves, and as the good woman said of Napoleon Bonaparte, "ought to be talked to severely." But who lets them have this cotton and tobacco? Is it surrendered at the point of the bayonet? Oh no, it is all SENT NORTH BY ITS OWNERS, because they are not disposed to have any "factory villages," and think mechanic arts quite beneath them. What "insolence"! What "tyranny!" Our Southern friends cannot but see that this extract is only the eloquence of big and hard words. We defy any man to put the idea intended to be conveyed into cool, logical propositions, and to show its connections, without showing at the same time that the South, in this very condition of things, (so far as it is truly represented,) have their own chosen way—that the system of policy which produces these results, is adopted and cherished by Southern politicians, in spite of Northern resistance, in opposition to Northern statesmen and Northern votes in Congress, and that they are the inevitable results of confining themselves so exclusively to agricultural pursuits. To talk about "insolence" and "tyranny" under such circumstances, is more than mere nonsense, it is downright impudence, and does much to alienate the feelings of the people in different sections of the country.

We advise our Southern friends not to be duped by such idle pretences, nor to listen to those POLITICAL ADVISERS who live by inculcating such doctrines. Let them advertise in our pages for masons, and carpenters, and blacksmiths, and brick-makers, and machinists, and spinners, and weavers, and so on to the end of the chapter, and build their own mills, and manufacture "their own cotton and tobacco," and make handsome profits by the process, and raise the price of land on every mill stream, and far and wide set into movement the whole system of mechanical industry, and our friend De Bow will then be crowded with the statistics of comparatively high prices, and profitable investments, and renewed lands, and reviving cities, and extended commerce. Let them defend and "protect" and cherish these efforts in their infancy, and then they will have the use of their own money and their neighbors' too, if they have any who refuse to go with them in these industrial pursuits. Let them use fewer harsh words, complain less, and accomplish more, and our word for it, they will grow rich and powerful, and in every such "community of 100 families" (if not too widely scattered) they too will have one or more "families supported directly from the United States Treasury," and with this additional gratification, that they do not enjoy these privileges at the expense of others. We would use a more moderate and truthful form of expression than is contained near the close of our extract, and say that the history of those States will never show a comparatively prosperous and an advancing community, as long as present systems and theories prevail.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

ECONOMY IN FARMING.

Mr. Editor:—I observe in the July issue of your valuable journal, an article on economic cultivation, which ought to be set in letters of gold. No farmer of common observation but will admit its truth, but still there is that early training, those scenes of our boyhood, the veneration for our fathers who cultivated the same fields—these cling to us in our after lives.

But all things are changeable, and so with the soil; it behooves us to look about us when we can see the lee shore in the distance, and hear the low sound of the breakers as they dash on the shore. The present high price of labor and diminished crops will hardly balance the sheet. We have known men the past season not able to cut more than three hundred of hay per day. Value of hay, $2 50. Labor, $1 75. Profit to the land of 75 cents on one day's work. You may say this will do very well, but, brother farmers we will show you another picture. By another system of cultivation a man will cut and house one ton of hay per day; estimate labor, $1 75; value of hay, $15; leaving a profit to land of $13 25; difference between the two systems, $12 50. So much is the difference in two day's labor.

But this is only a small item in a farmer's book. There are other crops as important as hay. We take for instance, Indian corn. Many farmers make no more than twenty or twenty-five bushels per acre, and some, we are sorry to say, do not do that. The cost of working the crop, the land, etc., as labor is now, will not fall much short of $20. Estimate price of corn at $1 per bushel: $25. Fodder, $5, making $30, leaving $10 to the land. In the making of this crop, the value of the land is diminished rather than increased for succeeding crops.

Fifty bushels of corn can be made with ease by good cultivation at the North per acre. Cost of cultivation, land, etc., $32. Corn, $50. Fodder $10. Leaving $28 as profit to the land. A difference between the two systems of $18 on one acre of land. This is quite a return for an extra outlay of $12. Now these are stubborn facts that will surely look the farmer in the face at the end of each year; but these are only two of the leaks in the farmer's ship. Many suppose that a farmer's thrift is told by the number of his half-fed animals about his yards. A grand mistake. Our motto should be, in this respect, more profit on one full fed animal than two half fed, which will be found by balancing accounts.

The earth is formed of atoms. So by taking care of small things, we make a large pile in the end. The droppings of a single ox once, is a matter you might say, of small consequence, but if repeated six times in twenty-four hours we get 1990 in a year, quite a pile. This being carefully composted with sods by the way-side, or mud from the swamp, rich in vegetable matter, and being combined with gasses, will produce four ears of corn for each dropping, making 7960 ears of corn at 230 ears per bushel, or 34½ bushels of shelled corn, and the land left in better condition for succeeding crops.

But perhaps, after all that may be said, that the waste of manure, and the injudicious application of the same to the soil, is the largest leak in the farmer's ship, and would end in a failure in most other pursuits.

A few days' extra labor in dull weather in the collection of turf, mud, and in fact, the waste of all things that are lying waste about almost all farms, would add largely to the amount of our stock of manure, and cover our fields with a bountiful harvest. This crop, judiciously spent, will place us in a situation to make another equally as good. Now, the greatest thing we want is to make ONE GOOD CROP, and after, if it is well spent, we can keep along. Our theory is, that the change of one plant will produce another.

EPPING, Aug. 6th. D. L. HARVEY.

STATISTICS FOR TENNESSEE AND KENTUCKY.

TENNESSEE has an area of 18,984,022 acres of land. Kentucky, 22,340,748 acres. Tennessee cultivates, 5,360,220 acres, and Kentucky, 11,268,270—more than double what Tennessee cultivates.

Tennessee has a white population of 829,210; slaves, 183,059: Kentucky, white population 779,828; slaves, 182,025—each State a population of twenty to the square mile. It is conceded by all who are posted up in statistics, that Tennessee stands at the head of the list in the great staple of these United States, to wit: Indian corn—Ohio second, and Kentucky third.

The products of each State for one year, stands for Tennessee thus—cotton bales, 194,532; tobacco, 20,148,923 lbs.; rice, 258,854 lbs.; oats, 7,703,086 bushels; wheat, 1,619,386 bushels; potatoes, 3,855,560 bushels; peas and beans, 369,321 bushels; value of farming implements, etc., $5,360,220. Live stock—mules 75,303 head; horses, 370,636; cattle, 750,765; swine, 3,114,111.

Kentucky stands as follows: cotton bales, 728; tobacco, 55,501,196 lbs.; rice, 5,688 lbs.; oats, 8,201,311 bushels; wheat, 2,140,822 bushels; potatoes, 2,490,671 bushels; peas and beans, 262,574 bushels; value of farming implements, etc., $5,169,037. Live stock—mules, 65,609 head: horses, 315,682; cattle, 753,312; swine, 2,861,163.

Manufacturing establishments for Tennessee—cotton goods, 53; woolen, 4; iron, 81; tanneries, 394. Home manufactory, $3,137,710.

For Kentucky—cotton goods, 8; woollen, 25; iron, 45; tanneries, 275. Home manufactory, $2,456,838.

Tennesse has produced two Presidents, eleven Representatives in Congress, and nine hundred and twenty-five old pensioners. Kentucky,—Presidents, nine Representatives in Congress, and six hundred and fourteen old pensioners. More than other States can show except New-York and Pennsylvania.

Total valuation of all live stock in the aggregate—Tennessee, $29,978,016; Kentucky, $29,591,387.

Capital invested in making whisky—Tennessee, $66,125; Kentucky, $298,900.—*Gazette.*

ENTOMOLOGY.

We continue our exhibition of this very important branch of science, and propose to present engravings of the more destructive kinds of insects. It ought to be observed that we base our statements principally upon the work of Dr. Harris, although we have consulted many others, found in the Astor Library and elsewhere. We take from them such suggestions as we deem valuable.

The following genera belong to the same order as those exhibited in our August number, viz.:

Coleoptera.

Osmodermia Scabia. Rough Osmodermia is a large insect, body broad, oval, thorax nearly round, color purplish black, and in the males of coppery luster. Head is punctured, concave on the top; the edge of the broad vizor in the males is turned up. Wing-cases thickly punctured, under side of body smooth, legs short and stout. They have a strong odor of Russia leather. Females are larger than the males, and are destitute of the coppery lustre, and are nearly an inch in length. During the day, these beetles secrete themselves in the crevices or hollows of trees, and are especially fond of cherry and apple trees. Their larvæ live in the hollows of these trees, feeding on the diseased wood. The grubs are fleshy, whitish, with a reddish hard-shelled head, and resemble the grubs of the common dor-beetle. In the fall, it forms an oval cell of the fragments of wood, cemented together, and comes forth in July in the form of a beetle.

Buprestis Femorata (of Fabricius) is of a greenish black color above, with a brassy polish, very distinct in the two large transverse, impressed spots on each wing-cover. The thorax has no smooth elevated lines upon it. Front pair of thighs is toothed beneath. Length, four-tenths to half an inch or more. Appears last of May to the middle of July. It especially frequents white oak trees, but is found in and under the bark of the peach. The grub bores into the trunks of these trees.

The Elateridæ; or Elators, or *Spring Beetles*, are related to the preceding. They are well known by the faculty which they have of throwing themselves upward with a jerk when laid on their backs, by an abrupt inflection of the anterior portion of the body. The body is of a hard consistence, usually rather narrow and tapering behind. The head is sunk to the eyes in the fore part of the thorax. Antennæ of moderate size, and more or less notched on the inside like a saw. Thorax broad at base as the wing-covers, usually rounded before, the hinder angles sharp and prominent. The scutel of moderate size, legs rather short and slender, feet five-jointed.

The grubs of the Elaters live upon wood and roots, and some devour the roots of herbaceous plants. Some of them are long, slender, worm-like, resembling the common meal worm, nearly cylindrical, with a hard and smooth skin, buff or brownish yellow, the head and tail being a little darker. Each of the first three rings is provided with a pair of short legs. They have a short prop-leg behind to support the body. Others of this class are proportionally broader, not cylindrical but flattened, with a deep notch at the extremity of the last ring, the sides of which are furnished with sharp teeth. These are mostly wood-eaters.

In England these are called wire-worms, but they are not the American wire-worm, which is a species of Iulus. The English wire-worm has but six feet, while the American has many. In Europe, to get rid of these insects, they strow sliced potatoes or turnips along the field, which are collected every morning, with the insects, which greedily come to feed upon them. After their last transformation Elaters appear on trees, and fences, and on flowers, and on the tender leaves of plants. They creep slowly, and, when touched with the hand, generally fall to the ground. They fly by night and by day.

The Genus ELATER (of Linnæus) has been latterly sub-divided into smaller groups.

Elater Ocularius (of L.) now called Alaus, is the largest of our spring beetles, and measures from one and one-fourth inches to one and three-fourths in length. Color black, thorax oblong square, nearly one-third the length of the whole body, covered above with a whitish powder, and with a large oval velvet black spot, like an eye, on each side of the middle. Wing-covers marked with slender, longitudinal, impressed lines, and spangled with numerous white dots. Under side of body and legs covered with a mealy white powder.

It is found in trees, fences, and buildings, in June and July. It undergoes its transformations in the trunks of trees.

The grubs are reddish yellow, proportionally broader than the other kinds, and much flattened.

All the beetles named above belong to the general tribe of LEAF-HORNED BEETLES, so called on account of the leaf-like joints with which the end of their antennæ is provided.

We now come to a class called SERRICORN, or Saw-horned, from the appearance of the tips of the joints of their antennæ, which project, more or less, on the inside, somewhat resembling the teeth of a saw.

Buprestis Diverca ; (or, Divaricata of Say,) when in the grub state attacks the cherry and peach trees. The beetles are copper-colored, sometimes brassy above, and thickly covered with minute punctures; thorax, slightly furrowed in the middle. Wing-covers finely marked with numerous fine irregular impressed lines, and small, oblong square, elevated black spots. They taper behind. Middle of the breast furrowed. Males have a little tooth on the under side of the shanks of the intermediate legs. Length seven-tenths to nine-tenths of an inch. They are found on the cherry and peach trees from June to August inclusive.

Elater Cinereus (of Weber) now called Melanotus, or Ash-colored Elater. It is six-tenths of an inch in length, dark brown, covered with short gray hairs, thorax convex, wing-covers marked with lines of punctures, resembling stitches. Their claws resemble little combs, thorax short and rounded before, and body tapers behind. It is found on fences, trunks of trees, and in paths, in April and May. They pass the winter under the bark of trees. The grub lives on wood.

Elater Communis, (of Schönherr,) now Melanotus, is very common, resembles preceding, but smaller, seldom exceeding a half an inch in length, lighter colored than the preceding, thorax a little longer, less convex, and having a slender longitudinal furrow in the middle. Appears in April, May, and June. The transformed beetle may be found under the bark of trees, in autumn, where they pass the winter.

Elater Apressifroas, (of Say,) now Ludius, so named from the vizor being pressed downwards over the lip. Body is slender and almost cylindrical, deep chestnut brown color, appearing gray from the many short yellow hairs which cover it. Thorax of moderate length, not much narrowed before, convex above, hinder angles very long and sharp pointed, and, in certain lights, of a brassy hue. Wing-covers finely punctured, with slender longitudinal lines impressed on them. Claws not toothed beneath. Length, four-tenths or five-tenths of an inch; females larger.

Elater Obesus, (of Say,) now Agriótes, is a short, thick beetle, dark brown, covered with dirty yellowish hair, which, on the wing-covers, is arranged in stripes. Head and thorax thickly punctured, wing-covers punctured in rows. Length three-tenths of an inch. It is seen in April, May, and June, among the roots of grass, underneath boards and rails which lie on the ground, and on fences. Kollar says: "This beetle is especially injurious to oats, causing the leaves to become dry and fall off. It destroys whole fields of corn by attacking the roots.

The larvæ are slender, linear, fleet, shining, smooth, slightly hairy and brown. The last ring of the body terminates in a toothed forceps. It resembles the meal worm.

We now reach the WEEVIL tribe, of which there are many kinds. They are distinguished from the preceding and from other insects by having the forepart of the head prolonged into a broad muzzle, or a snout, more slender, in the end of which is the opening of the mouth. Their name is suggested by this feature, viz.:

RHYNCHOPHORIDÆ; or *Snout-bearers*. They are of small size; antennæ are on the muzzle or snout, knotted at the end, feelers very small, and generally concealed in the mouth. The abdomen is often of an oval form, wider than the thorax. Legs short, and the soles of the feet short and flattened. They live upon bark, stems, leaves, buds, flowers, and fruit, and are often very destructive. They fly by day; though some kinds have very short wings, and are unable to fly. They walk slowly, and when alarmed, they turn back their antennæ, fold up their legs, and fall from the plant. They use their snout in eating and in boring.

Their grubs are short, fleshy, whitish, and without legs. The head is covered with a hard shell, rings of their bodies very convex, or hunched. Jaws strong and bony. Most of them are transformed within the vegetable on which they feed, though some of them enter the ground, and there undergo the change which converts them into beetles. Seed peas are often found with holes in them, the work of these insects; and perhaps the insect is still to be seen within the substance of the pea in spring in the form of a small oval beetle, one-tenth of an inch or more in length, rusty black, with a white spot on the hinder part of the thorax, and several dots behind the middle of each wing-cover, and a white spot, resembling a T in form, on the exposed extremity of the body. It is the *Bruchus Pisi*, of Linnæus, and is familiarly known as the Pea-bug. The larvæ feed upon the pea in its soft state. The grub is changed to a pupæ in the autumn, and during the winter becomes a beetle, and bores a passage sufficiently large for its egress. In laying the egg, the beetle pierces the pulp of the pea, leaving a small puncture, the place of which is rendered visible by its discoloration, the spot on the pod corresponding to that on the pea. BRUCHIDÆ is the name of the Weevil tribe.

Various plans are proposed in checking. the ravages of this insect. One is, by keeping seed peas in a tight vessel, more than one year, before planting them. Another, immersing them in hot water before planting. Late planting has been found effectual.

The crow, blackbird, and the oriole devour them, splitting open the pea for this purpose.

CURCULIONIDÆ, or the *Curculio* tribe, is extensive and highly destructive, attacking fruit and forest trees, and making great havoc. Of the latter kind, we shall treat hereafter. The falling of unripe plums, cherries, apples, etc., is caused by the grub of these insects.

Rhynchœnus, (now Conotrachelus,) *Nenuphar*; or Plum Weevil. This is the Rh. Argula, of Fabricius. Their color is dark brown, variegated with white, yellow, and black spots; thorax uneven. They are found as early as 30th of March, and continue through the season of fruiting. They are from three-twentieths to one-fifth of an inch in length, exclusive of their curved snout, which is larger than their thorax, and when they are at rest is bent under their breast. Color dark brown, variegated with white, yellow, and black spots; thorax uneven. Several short ridges may be seen on their wing-cover, those on the middle of the back forming two considerable humps of a black color, behind which there is a wide band of ochre yellow and white. Their thighs have two little teeth on the under side.

As soon as the plum is set, they pierce it with their snout, lay an egg in the puncture, and thus go from plum to plum over the tree. The irritation produced by these punctures makes the young fruit gummy and diseased, and it falls off before it is ripe.

When disturbed or shaken from the tree it resembles a bud in its general appearance, especially when feigning death, as it does when it is alarmed. The grub, which is a small, yellowish, footless white maggot, leaves the fallen fruit, enters the earth, changes into a pupa, and in the first brood comes to the surface again, in about three weeks, in beetle form, to propagate its species and destroy more fruit. It has not been decided whether the latest generation of the weevil remains in the ground all winter in the grub or in the pupa state. Dr. E. S. Sanborn, of Andover, Mass., asserts that the grubs, after having entered the earth, return to the surface in about six weeks as perfect weevils, which must remain hidden in crevices until spring.

Some of the remedies recommended for preventing the ravages of these insects are absurd, such as tying cotton around the trees in order to prevent them from ascending, since they are furnished with wings, and fly from tree to tree with the greatest ease. Among the remedies at present in use, one is to cover the fruit with a coating of white-wash, mixed with a little glue, applied by means of a syringe; another is to spread a sheet upon the ground under the tree, and then jar the principal branches suddenly, with a mallet covered with cloth, so as not to bruise the bark, when the perfect insects will fall into the sheet and feign death, and may be gathered and destroyed.

Hogs are sometimes turned into plum orchards, where, by eating the fallen and diseased fruit, they materially lessen the evil. Coops of chickens placed under the trees, and the branches often shaken, the insects fall, and are eagerly seized and devoured. All fallen fruit should be gathered up several times in the course of the season and burnt, or given to hogs, or destroyed in some other way. By so doing, thousands of the grubs which have not yet left the plums are destroyed.

Peaches, nectarines, cherries, and even apples, pears, and quinces, it is said, are attacked by this insect.

The large warts of a black color, as if charred, seen on many plum trees, are supposed to be produced by the punctures of these beetles, and to be the residence of the grub.

The most efficient security against these insects is the shaking of the trees every morning and evening while they remain in beetle form. When thus disturbed, they fold their legs and fall, and may be caught in a sheet, and, being properly confined, thrown into the fire. All the fruit that is pierced should be gathered as soon as it falls, and after being boiled may be fed to swine. The diseased limbs should be treated with a knife, and the diseased parts be burned, early in the season.

Calandra, (now Sitophilus,) *Oryzæ*, or the Curculio Oryzæ, of Linnæus, is a small insect resembling the wheat weevil, about one-tenth of an inch in length, exclusive of the snout, having two large red spots on each wing-cover. This weevil lays its eggs on the rice in the fields as soon as the grain begins to swell. The parent bores a hole into the grain, drops a single egg, and thus goes from grain to grain. When the grub is grown, it bores a hole through the grain, artfully stopping it with the flour of the rice, and are in the winter changed to pupæ. The following spring they become beetles and come out of the grain.

These beetles can be removed from the rice by winnowing and sifting the grain in the spring.

Another beetle has been very destructive to pear trees. The leaves and branches of the tree suddenly wither and die ere mid-summer. These effects have been traced by some scientific gentlemen to the depredations of a small beetle, only one-tenth of an inch in length, according to Dr. Harris *incorrectly* named by Prof. Peck,

Scolytus Pyri. Its color is deep brown, antennæ and legs paler, thorax short, convex, rounded, and rough before. Wing-covers minutely punctured in rows, and they slope off very suddenly and obliquely behind. Shanks widened and flattened towards the end, set with a few teeth externally, and end with a short hook. Joints of the feet slender and entire.

The only remedy consists in cutting off the limb *below the disease*, and before the insect makes it escape. This should be attended to in the month of June.

Saperda Bioittata. The larva of this beetle is the apple tree borer, whose ravages have been so extensive through New-England and the Middle States. The upper side of the body is marked by two white stripes, between three of a light brown color, the face, antennæ, legs, and under side of the body being white. Length one-half to three-fourths of an inch. It deposits its eggs in June or July, being laid upon the bark near the root during the night. During the day it rests among the leaves. It attacks the apples, the quince, and several fruit trees. The larvæ are fleshy whitish grubs, nearly cylindrical, and tapering from the first ring to the end of the body. Head small, hairy, brown. The first ring is much larger than the others. The next are very short, and all these are covered with punctures and very minute hairs. The 4th and on to the 10th are furnished with two fleshy warts. No legs can be seen. The larva state continues two or three years. The final change takes place within the wood, and near the bark, about the first of June, and the beetle gnaws through the surface and escapes in the night.

Several remedial operations are practised. Thrusting in a wire, and thus destroying the insect, has been long practised. Sometimes the grub is cut out with a knife or gouge.

Saperda (now Oberia) *Tripunctata*, of Fab. This insect attacks the tall blackberry and raspberry. It differs from the preceding in having a larger head in proportion, in being cylindrical in the middle, and thickened a little at each end. The beetles are very slender, of cylindrical form, black, except the forepart of the breast and the top of the thorax, which are rusty yellow; and generally on the middle of the thorax are two black elevated spots, and there is a third dot on the hinder edge close to the scutel. Length of the beetle from three-tenths to half an inch. Its transformations are completed in July, and it lays its eggs early in August on the stems of the shrub, near a leaf or twig. The grub burrows directly into the pith, and consumes it for several inches, producing the death of the stem.

PHYLLOPHAGOUS, or *Leaf-eating Beetles*, are numerous, but are comparatively harmless, and are so easy of access that their destruction is not so difficult. They generally are without a snout, with short legs, and broad-cushioned feet, eyes nearly round and prominent. Body in some oblong, and in others oval, broad, and very convex. Of these the

Hispa Rosea (of Weber) frequent apple trees. They are of a deep tawny or reddish yellow color, marked with deep red lines and spots. They appear late in May and early in June.

Cassida aurichalcea (of Fab.) is of a brilliant brassy or golden luster, but blackish beneath, with legs of a dull yellow, and is found on the stalks of the sweet potato and the convolvulus, appearing in May and June. The larvæ are broad, oval, flattened, dark-colored grubs, with a fring of stiff prickles round the thin edges of the body, and have a long, forked tail, which is turned over the back. They become purple early in July, and soon after are transformed to beetles, which are broad oval, and about one-fifth of an inch in length.

Galeruca vittata, or *criocetris vittata* of Fabricius, the striped Galeruca, or cucumber bug. This insect is well known by its ravages upon melon and cucumber vines in May, and early in June. Several broods are produced during the summer. Color: light yellow, head black, a black stripe on each wing-cover, inner edge of which is also black, the abdomen, part of forelegs, knees and feet of the other legs, are black. Length, less than one-fifth of an inch.

Among the preventives that have been tried, with more or less success, are sprinkling the vines with tobacco and red pepper, watering them with a solution of Glauber's salts, or of tobacco, or elder, or walnut leaves, or of hops. The use of charcoal dust is highly recommended, and also of Scotch snuff and sulphur. Lighted pine knots, or staves of tar-barrels, stuck in the ground rounds the hills, in the night, attract them and thus destroy them. A covering of millenet, stretched over a frame, is the surest.

The Genus HALTICA, one of the *Halticadæ*, contains a small, black, jumping insect, very injurious to cucumbers in their early growth. The body is oval and very convex above, thorax, short; head, broad; antennæ, slender, about half the length of the body, and implanted near the middle of the forehead; the hindmost thighs are very thick; surface of the body smooth, and often brilliantly colored.

These beetles eat the leaves of vegetables, preferring plants of the cabbage, turnip, mustard, radish, and other cruciferous plants. The Turnip Fly is one of the Halticas. Two ounces of sulphur mixed with a pound of turnip seed has sometimes proved a security against this insect.

Haltica pubescens, or the Cucumber flee-beetle, is one-sixteenth of an inch long, black, with clay-yellow antennæ and legs; body above covered with punctures, arranged in rows on the wing covers, with a deep transverse furrow across the hinder part of the thorax.

Haltica striolata, or the Wavy-striped flee beetle, may be seen in great abundance on the horse-radish, mustard, turnip, etc., in May.

Haltica chalybea (of Iliger) frequents grape vines, the buds and leaves of which it destroys. It is a greenish-blue color, underside dark green, antennæ and feet a dull black, about three-twentieths of an inch long. It appears in April and early in May. A second brood is found late in July.

Lime dusted over the plants when the dew is on them is useful in destroying them; also, alkaline solutions, or a pound of hard soap in twelve gallons of water, applied twice a day, with a watering pot. Kollar recommends an infusion of wormwood.

The following is also recommended, which is also said to be good on rosebushes:

Get 4 lbs. quassia chips and pour four gallons of boiling water over them in a barrel. Cover to keep in steam, and stand 12 hours; then fill the barrel and water daily.

Cantharididæ.—The Cantharides, or Blistering beetles, form a distinct class. They are distinguished from the preceding beetles by their feet, the hindmost pair having only four joints, while the first and middle pair are five-jointed. Of these

Cantharis vittata, or Striped Cantharis, has obtained the name of the *Potato Fly.* It is a dull tawny yellow, or light yellowish red color above, with two black spots on the head, and two black stripes on the thorax and each of the wing covers. The underside of the body, the legs, and antennæ, are black and covered with a grayish down. Length, about half an inch. In the Middle States it is very common.

Cantharis cinerea, or Ash-colored Cantharis, is often found on potato vines about 20th June and after. Its form is more slender than the preceding.

A black Cantharis is also sometimes seen in potato-fields. It is the *Lytta atrata* of Fabricius.

Other blistering beetles occur, but are not especially injurious to fruits or flowers. They may be destroyed by being caught and immersed in scalding water, and then sold to the apothecary.

Year-Book of Agriculture.—We publish in our advertising sheet the prospectus of the Year-Book of Agriculture, to be issued by Messrs. Childs & Peterson, 124 Arch street, Philadelphia. We have no other information on the subject than is furnished by this prospectus, and a printed circular which accompanied it; but the plan is certainly very capital, and carried out, as we are justified in expecting it will be, it ought to receive the attention of every agriculturist. We recommend the work to the examination of all our readers.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

FOREST TREES OF NICHOLS, N. Y., AND VICINITY.

Acer Rubrum.—Red Maple, or Soft Maple.—No. 1.—The Red Maple is found here, from the lowest creek flats to the tops of the highest hills, several hundred feet above the stream; and from sixty to seventy-five feet high, sometimes two feet or more in diameter, but generally less. The wood is close grained, of a reddish color. Sometimes the variety called Curled Maple occurs, in which the wood is winding or twisting, which renders it very hard to split. I have frequently been fifteen or twenty minutes spliting a log of firewood that would not have taken more than five minutes if it had been straight grained. By a close attention to the grain of the wood, when cutting down the tree, this can be remedied. The wood of this tree is very valuable for fuel, and for mechanical purposes it is best to saw into scantlings, four and a half inches square, and is worth now $8 per thousand—has been generally about $10.

The leaves of this maple are from five to six inches in length, and near that in width, and frequently not half that size; and from three to five lobed, and serrated, or notched on the edges; of a beautiful green color on the upper side, and a whitish pubescence on the under. These leaves turn up before a storm, and show the white side in a beautiful manner. Stems to the leaves from two to six inches in length, and of a reddish color; the young sprouts are of the same color. Flowers this year were in full bloom on the 24th of April, and fruit ripe on the 17th of June, contrary to the opinion of our venerable botanist Dr. J. Torrey. He says fruit ripe in September. Flowers red, and in great numbers, this year appearing a number of days before the leaves, giving the trees a beautiful appearance; flowers and fruit on stem about two inches in length, fruit of a reddish color in clusters, two seeds always attached together, base to base, with a wing on one side, near one inch in length.

The Red Maple makes a beautiful shade tree, and is set out along a number of public highways. The branches incline toward the body of the tree in a beautiful manner. The wood of the Red Maple, like the other species of maples, if left exposed to weather, soon decays, and the stumps from the smaller class of trees sprout very much two or three years. Cutting the sprouts either in the longest days or later part of August will destroy them, and the stumps in eight or ten years will rot out. The young of Red Maple has a dark smooth bark; the old tree deep furrowed and rough.

Acer Saccharinum.—Sugar Maple, Hard Maple.—No. 2.—This tree grows in this vicinity on the creek flats, also on the high hills in all elevations and situations, from sixty to eighty feet high, and two feet, rarely three feet, in diameter. Bark of a light color, and quite rough when full grown. Wood yellowish white and very hard, generally quite knotty after getting up twenty or thirty feet. The wood of this tree is of the best quality for fuel and for mechanical and cabinet-ware, especially when it is in the form of Curled or Birdseye Maple. It is then used for the front of chairs, bureaus, etc. The lumber from the Sugar Maple is worth here about $10 per thousand; rare kinds much more. From the sap of this tree, the common Maple sugar is made. The sap is drawn off by cutting a slanting box five or six inches long and two feet deep, about two feet from the ground, and insert a spile in the lower corner of the box. Another method is to bore in near the ground with a three-quarter inch auger in which a spile is inserted. The sugar is made by boiling the sap in kettles. A good-sized tree will make from ten to twelve pounds of sugar in a year. On account of the low price of cane sugar, there has been but little Maple sugar made in this vicinity for the last ten years, and it is worth now from ten to fifteen cents a pound.

The season of sugar making is generally from the 20th of February to the 15th of April.

This is one of the most beautiful shade trees we have in this vicinity; and is generally planted by the side of all the public highways and yards. The branches generally grow so as to form a pyramid, and are generally loaded with the most beautiful leaves. The Sugar Maple is quite a slow grower, and its extreme hardness makes it bad to cut into firewood, especially if cut down several months before it is made into wood. In clearing new land of this kind of trees, it is often the case that they fall across one another, when they are burned into, and so worked into short lengths without much labor. In burning a new fallow the fire will often continue in a large tree of this kind fifteen or twenty days. Its leaves are truncated, and somewhat cordate at the base, a beautiful green on the upper side, and whitish on the under, three to five lobed; lobes with a slender acumination, leaves from four to five inches long and a trifle more wide, especially across the lobes. Stems to the leaves from two to six inches long. Flowers appearing this year on the 1st of May of a beautiful yellowish green color. I judge the fruit will be ripe about the first of September. The fruit is of the same shade as the Red Maple, and about one-third larger. Stems to the fruit are about two and a half inches long.

Acer Pennsylvanicum.—Moose Wood, Striped Maple.—No. 3.—This small Maple, like the others, is found on high and low land, and is quite scarce. It is seldom more than twenty-five high, and from four to five inches in diameter. The bark is smooth, of a dark green color, with sometimes a a black stripe, with the ends of the branches with white stripes, giving the tree a beautiful appearance.

Leaves five to seven inches long, and from four to five inches wide, frequently near twice that size; three lobed, with end of the leaves running to a sharp point, edge of the leaves finely notched. Flowers appear about the 1st May, and fruit ripe about the 1st of September. Flowers much larger than either the Sugar or Red Maple, and of a beautiful green color. Fruit in clusters, on long stems; from eight to fourteen on a stem; yields a sweet sap almost equal to the Hard Maple.

Acer Spicatum.—Mountain Maple.—No. 4.—This Maple is a shrub or small tree, growing from four to sixteen feet high, and from two to three inches in diameter. The bark of a light color. In this vicinity it is found growing only along small streams and in shady places. Leaves from three to four inches long, and about that wide. Many of them not half that size; the larger leaves, three lobed, and the smaller with no lobes; edge of leaves deeply notched. Flowers appeared this year about the 15th of June, on long stems, from thirty to fifty on a stem, of a white color. Fruit reddish, much smaller than any of the other species, wings at a more obtuse angle than the other species, and a half inch long. Trees this year loaded with fruit when not five feet high.

NICHOLS, July 30, 1855. R. HOWELL.

VARIETIES OF COTTON.

The different kinds of cotton which are imported and used in Great Britain have been examined under the microscope by Dr. Ure and by Mr. E. Wilson. To their observations we are indebted for the following measurements. In examining a sample of cotton, it is usual to take a portion of it between the forefinger and thumb, and laying the portions as they are successfully drawn out back again on and parallel to the filaments from which they have been drawn out; and repeating this process several times, small tufts are formed, in which the respective lengths of staple may be observed.

The fibres of cotton, when drawn out from the mass in which they appear entangled, display so many irregular twists as to give them a jointed appearance, and, as Mr. E. Wilson observes, "in this state they resemble a string of oval beads, pointed at each extremity, and connected by their points."

The entire fibre appears to taper finely to both ends, that which is adherent to the seed being somewhat the thickest. Under the microscope the fibre is observed to be continuous, moderately twisted, flat, ribbon-like, clear, and transparent in the middle, and obaque towards each margin. The finer and more uniform the fibre, and more inclined to twist, the better is it suited for spinning into fine yarn. But if the fibres are short, broad, and formed of flimsy ribbons, they are less suited for machine spinning, though they may yet, as before mentioned, be twisted into thread by the delicate fingers of the Hindoo.

The value of cotton depends on the length, strength, and fitness, as well as on the softness and equality of the fibre. But these essential qualities are modified by color and cleanliness, that is, freedom from knots and impurities, so that there may be less waste in spinning. Formerly color had great influence, but now the great distinction is into long-stapled and short-stapled. The different kinds of cotton differ from each other not only in the above properties, but also in considerable differences in quality between different samples of the same kind of cotton. "The finest quality of Sea Island is sometimes worth three times as much as the common quality of the same class. The variation of quality in most of the other denominations is from 20 to 25 per cent., and in none of them is more than 50 per cent." These are sometimes divided into three or four qualities, as ordinary, middling, fair, and fine. At other times these are still further sub-divided, as into inferior, ordinary, middling, good-middling, middling-fair, fair, good-fair, fine, or good and fine. "Except the better qualties of Sea Islands there is no sort of cotton which is now confined it its use to any peculiar or exclusive purpose. By mixing different sorts together, and by careful management in preparing the mixture for spinning, the manufacturers can now make a substitute for almost any particular kind of cotton, except the very best. It is only requisite to add, that the long-stapled cottons are generally used for the twist or warp, and the short-stapled for the weft."

Sea Island, or long-stapled cotton, the most highly esteemed of the cottons, is remarkable for the length and fineness of its fibre, as for its silky softness. Among white cottons it is distinguished by a slight yellowish tinge of color. This kind sells in England from eighteen pence to two shillings, and has sold as high as five and seven shillings a pound. The quantity is limited, from the peculiarity of physical circumstances required for its production. The fibres are equable, about 1½ in length, and examined under the microscope, about $\frac{1}{2000}$th of an inch in diameter, formed of flattened cylinders transparent in the middle, obaque towards the margin, and more or less twisted. Dr. Ure has observed some kinds crimped transversely with irregular bandages, and some with flimsy ribbons and warts which adhere to the sides of the filaments, called neps by spinners. Mr. Wilson describes the Sea Island as thick and narrow, but looking the finest of all as seen with the naked eye. This kind is employed for spinning the finest yarns.

UPLAND, or short-staple cotton, under which names are now usually included the produce of the interior of Georgia and Carolina, as well as of Alabama, Mississippi, Louisiana and Tennessee. It used to be, and is sometimes still called *Bowed*, from the cotton of Georgia having been formerly cleaned with the Indian cotton-bow. Though shorter in the staple and unequal, this is white in color, much esteemed, and forms the bulk of the cotton of commerce. The staple is one inch to one and a quarter inches in length. The best kinds are fit for spinning as high as No. 50, some higher; the shorter kinds are worked up into No. 30, and other coarser yarns; but mixed with good Egyptian or with Pernambuco cotton, even these can be spun into higher numbers. Under the microscope, the fibres appear less twisted than others, some as cylindric fibres with many twists, of the width of about $\frac{1}{1400}$th of an inch; thin and broad.

EGYPTIAN.—The best Egyptian cotton ranks next to Sea Island in quality and length of staple, though it is not usually so well cleaned. It was only about the year 1821 that the Pasha began the cultivation, by importing seed from America and the Mediterranean and from Brazil. These different kinds may, therefore, be met with in cultivation there, though the Sea Island yields the best kind of cotton, called *Maho*, which is used here like that kind for the finest yarns. It has a staple of 1¼ to 1⅜ inches in length, from $\frac{1}{1500}$th to $\frac{1}{2000}$th of an inch in breadth, uniform, spiro-cylindrical, thin and broad. Some excellent cotton has been sent from Port Natal; that from the island of Bourbon used formerly to be much esteemed. Some has also come from the west coast of Africa.

WEST INDIAN.—The West Indies supplied England with the largest quantity of cotton in the eighteenth century; but the cultivation was neglected when sugar became more profitable, and the imports have greatly fallen off. But the cotton is long-stapled, silky, and may be produced of a quality equal to Sea Island. Bourbon cotton is the same species that is cultivated in the West Indies. The cotton of Porto Rico was at one time considered to be the best; that of St. Domingo has been spun into No. 100 yarn; and some of the finest cotton ever grown was in Tobago by Mr. Robly, between 1789 and 1792. The cottons of Barbadoes, Guadaloupe, and Jamaica, were also highly esteemed. Bryan Edwards (Hist. of the West Indies, 1793,) mentions a green-seeded cotton, from which the cotton can only be separated by hand. Inferior kinds, or shorter-stapled cottons, may, therefore, be imported from these islands. Dr. Ure describes the St. Domingo cotton as composed of narrow twisted ribbons, from $\frac{1}{1000}$th to $\frac{1}{1200}$th of an inch, with a few flattened cylinders and some spiry fibres.

SOUTH AMERICAN COTTON.—In the year 1780, Mr. Bryan Edwards states that "the finest grained and most perfectly cleaned cotton which was brought to the English market was, he believed, that of the Dutch plantations of Berbice, Demerara, and Surinam, and of the island of Cayenne;" and that these cottons sold at that time for two shillings a pound. The first importations of cotton are stated to have first taken place from Maranham in the year 1781. The Pernambuco was soon afterwards sent, of so fine and superior a quality as to be highly esteemed, and its price ranked next to the Sea Island. The staple is long and fine, generally well cleaned, glossy, some with a yellowish tinge; spins into a stout yarn, and is esteemed by hosiers. It continues to be imported into England from all these places, as well as from Bahio, Maceio, Para, also from Peru; inferior qualities from Carthagena. The fibre is in length about $1\frac{6}{10}$ to $1\frac{1}{5}$ of an inch; is cylindrico-spiral, about $\frac{1}{1500}$th to $\frac{1}{2000}$th of an inch in diameter; some with a few twisted ribbons and warty excrescences on the sides of the filaments.

East Indian Cotton.—Considerable, though varying quantities of cotton, we have seen, are imported from India. It varies a great deal as obtained from different districts; is esteemed for its color, though all is short-stapled, and generelly sent in a dirty state to market. In those of this country it is known by the name of Surats, Madras and Bengal, while the name *Surats* is often used as a general term for Indian cottons. Some of this cotton is of good quality and fit for general purposes, while the great mass is only bought when American cotton is dear. The cottons of Surat, of Broach, and of Berar are all included under the name of *Surats*, forming the kinds which are most esteemed here. The cottons of Cutch, of Candeish, etc., are likewise exported from Bombay, whence also England obtains the cotton of Coompta, which is produced in the southern Mahrattaern country and in the most southern part of Berar. These are also cottons naturally of good quality. Under the head of Madras, the cottons of Salem, Coimbatore and Tinnivelly are included, which rank higher than the cottons of Bellary, Guntoor, and the ceded districts. Bengal cottons include those from the northwest provinces, from Bundlecund, as well as what is imported from Nagpore and Berar. The latter kinds are of the same quality as are exported from Bombay; but they are generally used up by the weavers of the upper parts of the Bengal presidency. Some Bourbon cotton is also exported from Madras, the produce chiefly of the southern provinces of the peninsula; though esteemed, it is inferior to the original Bourbon. The Indian cottons, under the microscope, appear less spiry; a few flattened cylinders, with many flimsy ribbons and warty excrescences, varying in diameter from $\frac{1}{500}$th to $\frac{1}{1000}$th of an inch; some are $\frac{1}{1500}$th to $\frac{1}{2000}$th of an inch. In length differing from $\frac{17}{20}$ths to $1\frac{1}{10}$th of an inch.

Mediterranean Cottons.—Much cotton is cultivated in the countries surrounding the Mediterranean Sea. It is generally the produce of the Indian species of plant, though American seeds have been introduced into some other places as well as into Egypt. These are cultivated in Asia Minor, in parts of Greece and the islands; generally known as Levant, some as Smyrna cottons. The Italian cottons are produced in Sicily, in Calabria, near Naples, and in Malta. The cottons of Sicily, of Calabria, and of Castellamare, are the best, and are probably the produce of an American species. A Nankin cotton is cultivated in Malta, and used there. Most of these cottons are employed for native manufacturers in the countries where they are grown, or are exported for the use of the manufacturers of the continent. They are seldom brought to Great Britain, except when the price of cotton is very high.

Though we have noticed the appearance of the filament of cotton under the microscope, it is to be observed that the fingers of practised brokers have a delicacy of touch that enables them to judge most correctly of the fineness and length of staple, and some will pronounce, even in the dark, on the value of cotton. But the different varieties might yet be subjected with benefit to further microscopical examination, to ascertain the effects of the different processes of culture, in the several soils and climates of different countries, on the length, breadth, and smoothness of the fibre.—*De Bow's Review.*

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

EDUCATION OF FARMERS.

The notions are becoming obsolete that the cultivation of the mind and the cultivation of the soil are antagonistic, and that education is due only to "the professions."

It belongs to our strong-minded farmers to work a still greater reform in their midst. As improvements are made in agriculture, it becomes necessary, if a farmer would take respectable rank in his class, that he should be intelligent upon subjects relating to his department of industry; for the belief is becoming more popular every day, that the farmer who has his mind well stored is pretty sure to have his barns well stored also. This belief, perhaps, more than any other cause, has aided in carrying the weekly and monthly periodical to the country fireside, and made sale for thousands of volumes on agricultural science.

As a thirst for knowledge increases with its gratification, study and research in one department of science naturally creates a desire to extend the range. If farmers will encourage such desires in their children, mental culture and refinement will be found to adorn the social circle in the country as well as in the city. Indeed, there is no class more favorably circumstanced than the agricultural, for enjoying the true pleasures which general intelligence affords. With homes of taste where they might enjoy their hours of repose, with companionship that elevates and refines, the sons of the farmer would not think their dignity and respectability increased by being permitted to stand behind a city counter measuring laces and silks.

It is quite common for complaints to be uttered, that country people do not hold the position which they ought; that they are looked down upon by other classes. For this farmers are themselves responsible to a great extent. Let them manifest as much zeal and care upon the improvement of their families as they do upon their blooded stock; let not the poetry of life be all crushed by sweat and toil; let them give liberal patronage to literary and scientific institutions; then will the wealth which an intelligent understanding of the principles of agriculture brings, and the power which knowledge gives, place the farming class where no derogatory comparisons can, with truth, be offered.

The discoveries of the last few years have elevated agriculture almost into the rank of exact sciences. Certain conditions being given, the intelligent farmer knows precisely what to do in order to accomplish desired results.—Proofs of the advantages which such enjoy may be deduced from the many letters which are daily published, written from various parts of the country, asking for information concerning the treatment of lands etc. Did the writers of many of these letters possess, in connection with their practical skill, a knowledge of the organized sciences and their handmaid, Chemistry, they would be capable of giving the information sought instead of asking it.

The great principle upon which scientific agriculture is based, is this: "not a particle of matter can be created, not a particle can be lost." It is on this principle that manures are applied to soil, that crops are varied, that old and exhausted lands are renovated.

But the economical and intelligent husbandman has no exhausted fields. He knows the elements of plants to be few, and the stimulants he can generally command, to a great extent, from his own resources. In studying the laws of chemical and vital philosophy, he has wide scope for observation, and for controling the processes of decomposition and recomposition to the accomplishment of specific ends. From Spring to Autumn, from Autumn or Spring, his broad acres are his laboratory and observatory. He sees in the death and decay of one season, elements for the beauty, brightness, and wealth of the next.

In this country there is no position too high for the aspirations of the intelligent and successful farmer. Has he by his own toil subdued the land, and by his acquaintance with nature's laws reaped golden harvests, he finds himself secure in the possession of two means for controlling men. First, that willingness, "to know his work and do it," which Carlyle says is the mission of every man, and which forms a strong link of brotherhood with those who are delving. Second, he possesses wealth which has a charm to open a passage to the hearts of a certain class. If, added to these, he has that intelligence which commands the respect of cultivated persons, he possesses perhaps greater power than any other man for gratifying an honorable ambition. The people regard him as their own, they look up to him, and are willing to crown him with the wreath of honor. JUNE ISLE.

MANURES.

HOW THEY ACT—HOW TO BE APPLIED.

WRITERS on this subject are in the habit of classifying manures under different titles, as stimulants, fertilizers, etc.

There is, however, an objection to this, because such an arrangement seems to give the impression that the earth is, like the human body, acted upon through nerves which excite or which produce stupor in the system, as one or another application is made, and again, through other organisms which actually yield new elements, suited for the actual transformations needful, in order to assimilate its substance to the plants, actually to unite or annex these prepared elements to the structure of the plant. The views of any writer, in reference to these matters, are mere theories, often crude and inconsistent, or often are nothing better than hypothesis or mere supposition.

Certain facts, however, are pretty well ascertained, and under this class we may place the following:

1. Some kinds of manure act indirectly by producing chemical changes in the soil with which it comes in contact. They may dissolve or render soluble what was before insoluble, and thus render fertile what was useless.

2. Some applications may produce a reverse action, and by transmitting into insoluble combinations what was before soluble, produce barrenness.

3. Some applications produce a change only on the physical condition of the soil, acting precisely as the spade does; namely, causing the earth to become porous, or pulverulent and light, in contradistinction to a consolidated, adhesive mass. If the ground is in the latter condition, neither the roots nor the rain can find their way into it. Like hardened clay, it resists the effect of the one and sheds the other.

4. A given element, necessary for certain chemical or vital actions, may be wanting, and the fertility of a soil may be increased by the proper addition of this deficiency.

But when we begin to classify different manures, among these different agencies, we are far from actual demonstration. In a hundred experiments, we may find ninety corroborating our favorite theory. The other five are absolutely and irreconcilably inconsistent with it. The received process, in such case, is to announce that our theory is confirmed by numerous experiments, and to treat the results of the other five as some mistake, or as tainted with error or imperfection in its management.

All knowledge is useful. Each branch of science is indispensable in its place. But it is not unfrequently dragged out of its place, and made to appear more as a clown or "fool" than the declarations of true wisdom.

All farmers would find great benefit in a thorough practical knowledge of chemistry; but all farmers never will be chemists any more than they will be physicians or lawyers. It requires as long study and as thorough practice to be a truly skillful and *practical chemist*, as it does to be a good physician or a good lawyer. We may talk about this in our public addresses, and write about it in our journals, but no Methusaleh will ever live long enough to see such a diffusion of knowledge actually accomplished.

Our lands are just about as much diseased as our bodies are. As stated elsewhere in this number, there are scores that have some physical ailment, generally or frequently fastened upon them in the primary school, while others are inherited from their parents, where there is one strong, vigorous, well-developed system, without any weak spot in it. No one expects that all will become skilled in prescribing for all the ills that "flesh is heir to," and why should they dream of any such reform in respect to the "theory and practice" of agriculture? We hope to cure these bodily ills, but only by improving our school benches, and our habits in childhood and youth, and by having wise teachers and wise committees and trustees, while it will be the part of the children to obey. The process must be analogous to this, in reclaiming our waste lands.

Animals fed on food which is destitute of certain elements, will exhibit corresponding diseases in their own bodies. The same phenomenon is universally witnessed in plants which grow sickly and feeble for want of one or more of these elements. The land is barren, the crop fails, and the season is lost, perhaps, for the want of a few pounds of phosphorus per acre, or a very small supply of nitrogen.

Thus we lay down such general statements as we have given at starting, and prescribe, in general terms, that for close, compact lands, the plough, the cultivator, and the harrow must be vigorously applied; that in heavy, moist soils some compost of an opposite character must be thoroughly mingled; and when we have formed a list of such rules of moderate length, we have gone to our utmost limit. No millenium of our anticipation will ever produce learned men without persevering laborious study, nor allow one to be diligent for a whole day in out-door labor, and then do a day's work in the library at its close. It is only the few wonderfully apt minds of those who are not eminent for the amount of work accomplished in their own calling, that *seem* to furnish exceptions.

We therefore must content ourself and our readers by an endeavor to give general principles, with a few appropriate directions, when the conditions of the case are obvious, and leave the rest to the agricultural chemist, who, if properly trained, may give specific directions in each case, presented to him, precisely after the manner of a family physician.

Certain facts are well established. If by tight shoes we produce corns on the foot, one essential part of any remedy must consist in removing this pressure. So if our farmers have exhausted their soils by repeated crops, while the harvests removed have not been supplied in some other form, the land must deteriorate. And one essential point must not be overlooked; to wit, this process *must be stopped*. No plan can be successful in endeavors to do this, which does not carefully regard this fact.

The farmer must know what he has removed, and what he has returned. Probably few have manured their lands to an amount equal to what has been removed in the *accidentals* of the crop, so to speak—such as the straw of various grains, the stalks of corn, the tops of potatoes, etc. Now a good crop of grain cannot be grown without a healthy, vigorous straw; unless this growth is liberally provided, the crop must be a comparative failure. Barnyard manures, next to the straw itself, are the best application for such a purpose. If deficient in anything, it must be in the silex, and this is abundant on almost all soils, though it may be in a condition to render it useless to the plant. Hence, silex in soluble form, or an application that shall render it soluble in water, in such cases will not be out of place.

Rest, however, is generally sufficient for this purpose. Natural agents act of themselves if let alone, and a year or two of rest will prove of great value to all soils exhausted by frequent crops.

A change in the nature of the successive crops, that is, judicious rotation, is another efficient mode of restoring the fertility of such soils.

In liquid manures, as urine, etc., these elements are already in solution, and hence act more rapidly when applied than solid manures. But for the same reason they are less efficient in renewing worn out soils, their efficacy being chiefly exhausted during the growth of the first crop.

The value of all manures is in proportion to the amount of useful elements which they contain, in soluble form. The following arrangement shows the elements which are most likely to be deficient, and which must therefore be provided by the successful farmer.

1. Nitrogen.—This is as important for plants as for animals, and whether it is obtained from the soil or the atmosphere, it is perfectly clear that this and all other matters which go to make up a "fertile soil," as generally understood, must be placed within the reach of the plant. This supply of nitrogen *may be* always appropriated from the ammonia which is in the air or in the soil, as chemists claim, but this does not enable the plant to dispense with the element in the soil. It must be furnished in some form.

2. Phosphorus.—This is another essential element, which ought never to be omitted. It exists in barn-yard manures, and all animal excrements. Still, an additional supply from guano, bones, etc., in many cases will prove highly useful. Especially is this the case where the cereals have been grown, for those crops consume the phosphorus much more rapidly than many other crops.

3. Sulphur is another element which is often used up by successive crops. This is furnished in gypsum, which is a compound of sulphuric acid and lime, and is therefore the sulphate of lime. Look over the various tables of analysis, note what crops contain this element in the greatest proportion, and if such crops have been or are to be grown on a given soil, it is at least safe to use this fertilizer freely.

4. The several alkalis may come next in order. An examination of different analyses will show which of these is most abundant in a given growth, and your knowledge of the crops raised will enable you to judge whether either of these is likely to be deficient. Three per cent. of lime should exist on all soils. It is always safe to apply them all, as an excess of alkali is not one of the evils ordinarily requiring caution in the preparation of soils. The alkalis may be supplied from bones, ashes, lime, gypsum, etc.

5. Carbon is present in all crops, and is always useful in every kind of soil, and though it is supposed to be appropriated by the plant from the atmosphere, it must form a part of every good soil, and though injurious when supplied so freely as to render the atmosphere of the plant essentially impure to the exclusion of Oxygen, etc., there is little actual danger of such excess. Charcoal dust, powdered peat, etc., contain this element in a very convenient form.

6. Iron may exist in excess in soils, but this occurs only in limited territories.

The mode in which these manures should be applied depends on their nature and the specific object in view. When lands are to be improved, all manures should be composted, or at least ploughed in and thoroughly mixed and incorporated with the soil. If the increase of a growing crop is the aim of the farmer, he may sprinkle them on the surface, and mix in with the harrow, etc, if the nature of the crop permits such operations, or he may use liquid manures as irrigants. Small portions used in the hill at the time of planting, act on the next crop chiefly, and if used freely will, in some limited degree, improve the general character of the soil. Where stocks are small, and the supply of barn-yard manure limited, various composts, as found on many pages of our journal should be mainly relied upon.

HORTICULTURAL.

Antwerp Raspberries.—The Poughkeepsie (N. Y.) *Eagle* gives a very good account of the details and extent of one branch of "Fruit Culture" thus:

But few persons are aware of the extent and importance of this comparatively new branch of Agricultural, or rather Horticultural business.

The most extensive operations in this part of the country, are carried on at Milton, Ulster county, although the fruit is largely cultivated in this country.

There are now about 100 acres of Raspberries in bearing, in the immediate vicinity of Milton, and immense quantities of plants are being set out every year.

A few days ago we visited the Raspberry plantation of Nathaniel Hallock, at Milton, in order to learn the *modus operandi* of the culture. Mr. Hallock's being one of the principal plantations.

The pickers were in the fields with their baskets between 8 and 9 o'clock in the morning, as soon as the dew was off the plants, as the berries do not keep so well when picked wet.

In a short time the pickers began to bring in the baskets of berries. These baskets hold about a pint, and are very neat looking, being made of willow, and much superior to the baskets in which strawberries are sold, in fact the berries would hardly sell if sent to New-York in strawberry baskets.

There were about fifty pickers at work—men, women and children—the women being the most expert pickers, of course.

One person was employed constantly, and a part of the time several persons, packing the baskets. The baskets, as soon as picked and examined, are packed into boxes of different sizes, according to the crop of that day. The object of putting them into boxes is to insure their safe transit to the market, and in order to do this the packer has to work carefully to fit the baskets in so that each one braces the other; when the boxes are filled to the top, the lid is closed and locked, and the boxes are ready for shipment.

The season lasts about six weeks, and this period is one continual round of business; the berries being sent off to New-York every night except Saturday, (there being no sale for them on Sunday.)

The berries were all picked about six o'clock, and after supper they were conveyed to the landing, the baskets making two very heavy two horse loads, and as we could calculate the steamboat took off about 60,000 baskets that night, making about 20 tons of berries, exclusive of the weight of boxes and baskets.

The baskets are imported from France by hundreds of thousands every year, and although such quantities are manufactured every year, the supply is inadequate to the demand, the latter exceeding the former by about one-half.

The culture of the plants requires the services of a large number of people.

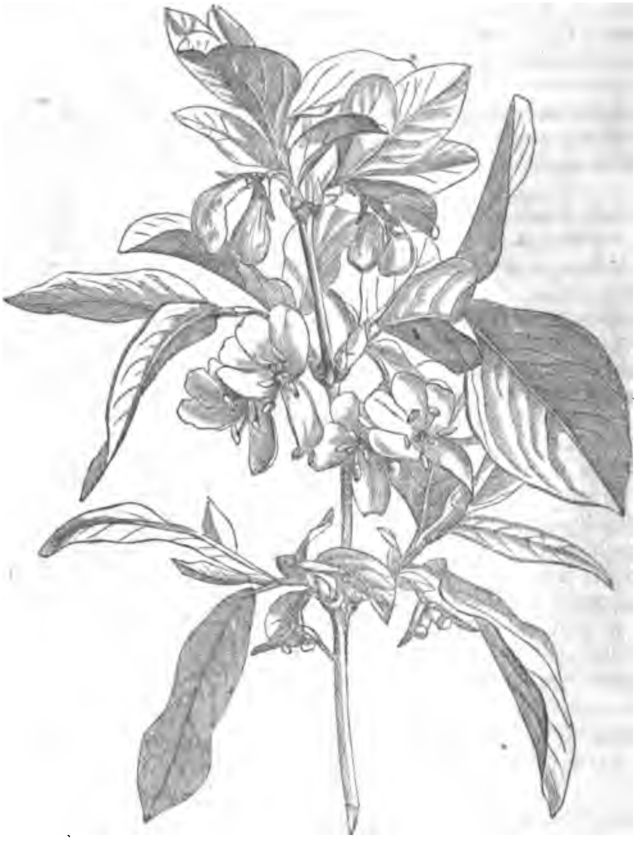
The pickers constitute a small army, there being from five to ten, and often more required for each acre, according to the time in the season, which was at its height this year about the second week in July.

The manufacture of the boxes in which the baskets of berries are packed is no small item, and the steamboats that carry this extra freight are obliged to employ extra men to handle it.

This business, though at first view it seems small, gives employment to, and distributes its gains among thousands of persons.

From the Milton landing, the average daily export is 10,000 baskets, and the retail price in New-York, averages about ten cents per basket, thus the product of 100 acres, amount to $1,000 per day, or $42.000 per season. We can call to mind no other crop which produces as much per acre, or which gives employment to so many.

CATAWISSA RASPBERRY.—The Catawissa raspberry originated in the graveyard of a little Quaker meeting-house in the village of Catawissa, Columbia county, Pa. The fruit is of medium size, inferior to many of the new popular varieties, but is sufficiently large for all economical purposes. Its color is dark red purple when ripe, and is of a very high flavor. It bears most abundantly after the young wood, on which it produces its best fruit, attains a height of four or five feet; usually begins to ripen early in August, and even sooner. The fruit is produced on branches continually pushing out from all parts, successively appearing in various stages of growth, from the blossom to perfect maturity; and often there may be counted more than fifty berries on a branch. As the fruit of each branch successively ripens, the later ones gradually diminish in size; but there is no suspension of blooming or fruiting, before the plant is checked by frost. If protected in doors, it undoubtedly would produce during the winter months. One great advantage of this over other varieties of the raspberry is, that if the stocks should be accidentally broken off, or should be killed by winter frost, it is all the better for the crop. Another advantage is, that from the small space of a few yards well cultivated, a daily dessert for a small family would always be at hand for from three to four months of the year.



LONICERA FRAGRATISSIMA.

This is a sub-evergreen hardy shrub. Flowers whitish, very sweet scented. Native of China. Belongs to Caprifoils. Introduced by the Horticultural Society.

This is one of the plants obtained from China by Mr. Fortune, while in the service of the Horticultural Society, but has not flowered in the Chiswick Garden, where it has been merely known as a perfectly hardy "Caprifolium." In January, 1853, it blossomed in the garden of the Marquis of Salisbury, at Hatfield, whence Mr. William Ingram, the gardener there, sent us specimens, with the following note, on the 13th of April:

"The plant which affords me these flowers has been in bloom since January. It occupies an east wall, and has enjoyed no particular advantages of soil or treatment. The flowers appear with the earliest development of the leaves; and although not large or otherwise striking in appearance, compensate for any deficiency by their exceeding fragrance, combining the richness of the perfume of orange blossoms with the delicious sweetness of the honeysuckle."

Its evergreen foliage distinguishes it from all the previously-known species of the Chamæcerasus division of the genus.—*Paxton's Flower Garden.*

THE NEW-ROCHELLE BLACKBERRY.

We have just received a specimen of the fruit of the New-Rochelle blackberry, for which we are indebted to the politeness of Messrs. George Seymour & Co., of South Norwalk, Ct. The berries were slightly bruised in transportation, some forty miles on the railroad; but we assure our readers, nevertheless, that they afforded us a very fine treat. Mr. Woodworth, our neighbor of Woodworth's *Youth's Cabinet*, who has just paid a visit to the nursery of Messrs. Seymour & Co., assures us that this blackberry is all that has been claimed for it. He counted upwards of 800 berries on one stalk, many of them of gigantic size, and all much larger than the common variety. Messrs. Seymour & Co. have several acres devoted to the cultivation of the plants, though they have no hope of being able to supply the demand for the next season. We are well assured that there is no humbug in this blackberry.

Currants.—A writer in the *Horticulturist* speaks of the fine currants of the market gardens near London, which are grown in the following manner: They are planted in rows twenty or thirty feet apart, and three or four feet apart in the rows; the ground which is naturally good is highly manured, and cropped between with vegetables. When the plants commence bearing, they are pruned very hard; the greater part of the young wood is thinned out, and what is allowed to remain is shortened back to three or four inches. By this means the trees are always kept short, never attaining a greater height than two or three feet. These strong manured and well pruned trees produce magnificent fruit, and in great abundance, well remunerating the market gardener for his trouble.

Wine Making is getting to be a profitable business in Lower California, where the vineyards are extensive. One proprietor last year had twenty five thousand bottles of wine from his vineyard, and this year he expects a greater yield.

SOUTHERN FRUIT.

THE ORANGE, LIME, LEMON, AND FIG OF FLORIDA.

The Orange.—This tree, at one time furnished the leading export of Florida. Previous to the great frost in 1835, it is said that there were over two millions shipped annually from St. Augustine alone. The orange of Florida is very large and fine flavored, and commands the highest price of any in the market, having been sold in the grove as high as $10 per thousand. It has been remarked that the fruits of the tropic, generally, grow to the greatest perfection near its verge. This is certainly true in regard to the orange and banana, which, in the northermost Bahama islands, are much superior to those of Cuba, St. Domingo, and localities still nearer to the equator. From the shores of the Atlantic to the Mississippi, the great frost of 1835 completely ruined the orange groves. The effect was probably nowhere so severely felt as in Florida, where they furnished the staple crop of the country. The effect upon the city of St. Augustine, which was one vast orange bower, is thus described by Williams:

"All kinds of fruit trees were killed to the ground, and many of these never again started from the roots. The wild groves suffered equally with cultivated ones. The orange had become the staple of our commerce, several millions being annually exported. Numerous groves had just been planted, and extensive nurseries could scarcely supply the demand for young trees.

"Some of the groves the previous autumn had brought their owners one, two, and three thousand dollars; and the increasing demand for the fruit opened prospects of mines of wealth to the inhabitants;

'Then came a frost, a chilling frost;'

some of the orange groves estimated to be worth $10,000, were at once rendered worthless. A portion of the population of St. Augustine, who had been accustomed to look to their orange groves for the purchase of luxuries and of necessities, were left suddenly without resource. The town of St. Augustine, that heretofore appeared like a rustic village, its white houses peeping from the clustering boughs, and golden fruit of its favorite tree, beneath whose shade the foreign invalid cooled his fevered limbs, and imbibed health from the forest tree, how is she fallen! Dry, unsightly poles, with rugged bark, stick up around her dwellings, and where the mocking bird delighted to build her nest and tune her lovely songs, owls now hoot at night, and sterile winds whistle through the leafless branches. Never was a place more desolate."

Years passed on. A new growth had, in a measure, redeemed this desolation, when a new calamity was experienced, not as sudden, but eventually as destructive as the frost. This was the visitation of the "insect," against whose ravages nothing was found to avail. Grove after grove became blighted, yet, as some localities were spared for several years, it was hoped the destruction would not be universal. The insect first made its appearance at Mandarine, a flourishing village on the banks of the St. John's. It was thought by some to have been imported on a couple of trees brought from China and planted here. Like the weevil in the northern and southern wheat fields, nothing can stay its progress until it has run its appointed cycle, and will probably disappear as mysteriously as it came. Twice, during the last hundred years, has the orange in the Mediterranean and South Europe been similiarly attacked. And the hope that here, as in Europe, the insect will pass away, still continues to cheer the Florida orange grower, and he awaits the happy moment to renew his operations with renewed vigor.

An orange grove of common sized trees will produce from 500 to 2500 oranges per tree, worth $5 and $25 per tree. One hundred trees or more can be planted upon an acre. Very little labor is required to keep a grove in condition. The sour orange, which grows spontaneously all over the peninsula, may be budded with the sweet orange, and will bear in three years. In many places the banks of lakes and streams are lined with wild groves of orange, some of them great in extent. These do not seem to regard the insect to any great extent, and continue to hang their golden clusters amid the green. On the upper waters of the St. John's, and also on the Atlantic coast near New-Smyrna, fine oranges are now produced; those from the groves of Mr. Shelden and Mr. Speer being of peculiarly large size and delicious flavor.

Lemons and limes grow very thickly in Florida, and are abundant in a wild state. The Sicily lemon, transplanted in Florida, is much improved from the original; the writer of this has seen a specimen which measured eleven inches in circumference.

The fig attains perfection in Florida. There are several varieties of this fruit; those of a dark purple color and about the size of a hen's egg, being preferred for the dessert. A branch cut from a bearing tree, and merely stuck in the ground, will produce fruit in two years. No attempt has been made to preserve dried figs in Florida, but it is evident that some method to do this could be devised, in which case New-Smyrna might rival the Asiatic Smyrna in her export of the delicious fruit.

The hawey is a miniature fig, growing upon a large beautiful tree in southern Florida. The fruit is above the size of a hazel nut, and grows from the limb of a tree without any apparent blossom. It is of a dark brown color, and resembling the fig in taste.

The persimmon is a delicious fruit, when fully ripe. In fact, when it is in perfection, there are few tropical fruits that can rival it in richness; when green it has a fragrant astringency, only equalled by the prickly-ash or the wild turnip. The natives of Florida used the dried persimmon extensively as an article of food, and we read in the lists of stores and provisions furnished by them to the old Spanish expeditions of cakes of dried persimmon. —*Abstract from Soil of the South.*

HUMAN PHYSIOLOGY.

[We have long thought it would be useful and desirable to present correct views, at length, on this most important subject. We have just received the following excellent essay on one branch of the subject, which we give below as an introduction, inviting our valued correspondent, from whom we shall always be happy to hear, and others who take an interest on this subject, to give their views in careful detail on any of its numerous departments. All are profitable, and appropriate discussion is never without a good result.—Ed.]

THE TREATMENT OF CHILDREN.

POOR children! My heart aches when I look at the little things! If you would know why, just take your stand where you can have a fair view as they come streaming out from the various departments of the public schools. How many do you see that are fat, rosy, and substantial-looking? How many can you select that have neither sunken, sickly-looking eyes, deformed bones, or the sallow complexion unnatural to childhood?

Were I to offer to adopt all the sound and natural children you could select from that mass of three or four hundred, I should not apprehend any risk of imposing a great burden upon myself.

Poor children! I wish I could read their mothers a lecture, which would ring in their ears until there was a complete reform in babydom. A mother's pride in her children is proverbial. Is it not strange, then, that she does not make childhood her first and most earnest study? Is it not passing strange that she should rear children without continuous and earnest thought and research upon the proper means for securing the highest degree of health and beauty?

In this matter, as in many others, that is an inexcusable weakness which leads us to walk in the old paths, for no better reason than because they are the same which our fathers and mothers trod. Remonstrances with a mother upon the treatment of her child are often answered with the very foolish reason, that her mother pursued the same course in raising a family.

Poor children? My heart aches for them, that they have not mothers who will think for themselves. Through ignorant kindness or culpable thoughtlessness, many feed their children, from the age of three or four months, on meats, pastry, or whatever they themselves eat, washed down by tea and coffee. The children may thrive for a time, and be pointed out by the mistaken mothers to those who advocate "milk for babes."

Such, probably, was the babyhood of ninety-nine hundredths of those unfortunate children that were just seen issuing from the public school. Without any regard to the indications of nature, the infant system was stimulated by those things that are with difficulty digested even by the adult stomach.

Poor children! Not only were they overfed, but from the time they were first put into the hands of the nurse, they have been tortured by their dress, as though they must thus do penance for mother Eve's transgression. Who can sit, a calm looker-on at a baby's toilette-making—the lifting up and laying down—the turning over and twisting around—the girthing and bandaging—the pinning and pulling—the powdering and dosing—the laying on of garment over garment with rule, but without reason?

So true it is that "the child is father of the man," I fear for future generations, unless there be a reform in *babydom.* The treatment followed in a majority of cases vitiates the system at an early age, inducing scrofulous diseases, premature developments, and tendency to insanity. The whole system is an unnatural and diseased condition. Years *may* pass, and the child may even grow to maturity without suffering from severe sickness. But when it comes to assume the responsibility of rearing offspring—what a progeny—dwarfed, mentally and physically—an embodiment of disease, born to endure life, not to enjoy it.

Better would it be for our race were a Spartan severity enforced, than thus to people the earth.

So long as parents exercise authority over their children in other matters, they ought to do so intelligently in the important items of food and clothing. To the age of ten years, the child's food may be of the simplest character, yet nutritious enough to supply all the wants of the body. Milk, bread, ripe fruits, and vegetables certainly offer sufficient variety, and promote a healthy appetite without resorting to meats, tea, coffee, etc. At whatever age stronger food is allowed, it should be taken in moderate quantities at the noon meal.

The number who are induced to mark out a path and follow it is small, because the majority are willing to blindly do as their predecessors did. But perhaps there is no subject of more universal importance to the race than the proper treatment of children—no subject which should be more constantly brought before the minds of the people—none more worthy for employing the eloquence of philanthrophic physiologists. JUNE ISLE.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

MEMOIR ON THE PRODUCTION OF BUCKWHEAT.

[CONCLUDED.]

It now remains to indicate sundry preparations of Buckwheat, which we extract from the 71st page of my Memoir before referred to.

"SEMOULE. 1st. Prepared with milk, with water, and with broth.

"The Semoule is put into the boiling liquid, in due proportion, and then is frequently stirred with a spoon, while it is boiled over a moderate fire for half an hour. Two ounces will suffice for a litre. The water should be salted to one's taste. In eating this, add a little fresh butter. 2d. If you mix four ounces of Semoule in a litre of water, you will obtain a thickened mass, which being placed gently on a plate, and allowed to cool, will become firm. It may be cut with a knife, and being served in a soup-plate with the addition of a little broth, answers as a substitute for bread. 3d. This thickened semoule, fried in a frying-pan with butter, is an agreeable dessert. 4th. Four ounces of semoule, corked with milk and cooled, the yolks of a few eggs and little sugar and raisins, make an excellent cake. (It much resembles cake prepared with rice. It should be cooked in a copper pan, with a liberal proportion of butter, covered, and to make a crust, a little fire may be placed on the cover.) Each one may mingle with this as he pleases, dried prunes, orange peel, raisins, cinnamon, or the water of orange flowers. 5th. "The same semoule, with a little butter added to the water, and with salt and minced parseley, makes a good dessert." Instead of the parseley, sugar, cinnamon, or the water of orange flowers may be substituted. 6th. Semoule thickened with hot water, with the addition of fresh butter, makes a dish which, eaten with the sauce of ragout, may be a substitute for bread."

GRUAU.—[From page 73 of the same Memoir.]

7th. The course meal, gruau, is prepared in the same manner which we have indicated in the 1st, 2d, 3d, and 6th of the above paragraphs, in treating of Semoule, with this difference, that twice the quantity of gruau should be used as is prescribed of the semoule; that is, four ounces for two, etc. 8th. A ragout of mutton being cooked in a sauce, well clarified, and well seasoned, gruau being then added in due proportion; the mass stirred briskly and often, over a moderate fire, the result is an excellent ragout, *a la Caliph of Bagdad*. 9th. To make cake, the gruau, cooked in water with salt and butter, is placed in a copper pan or in a baker's oven. 10th. Mix half a pound of gruau with a litre of water, salt it, let it stand in a cold place, cover it, and send it to the baker. When cooked, cover it freely with butter, and you obtain a dessert *a le the Emperor of Russia*. It is improved by the addition of butter in the pot before it is cooked.

The gruau of Buckwheat serves also for the confection of excellent puddings. They may be prepared as follows:—Upon a half pound of gruau, pour a little boiling water, mixed with a pound of the liver of veal, of mutton, or of pork, and mix it with the meal. Pour over this a pound of melted fat, season with salt, pepper, pimento, etc., to taste, when this mixture is brought to a proper consistence, neither too thin nor too thick, and when cooked for half an hour in boiling water, it forms an excellent pudding.

A very delicate pudding is made with the semoule of Buckwheat as follows:—Take one pound of scalded semoule, two pounds of liver. one pound of fat, four ounces of raisins, two ounces of pounded sugar, season with salt, pepper, etc., in proper quantities, mix, etc., and you have a confection highly prized in Poland and Germany.

I now proceed to point out certain uses for the farina of this plant. It may be supposed that it is impossible to make good bread of this farina, but this is an error, though it cannot be thus used unmixed. It would be heavy, and soon become dry. But it should be mixed with that of wheat or of rye. We have made experiments in this in presence of the agricultural commissioners of Remorantin, that is, the department of Loire and Cher, in France, and the result was as follows:

Extract from the Report of the Agricultural Commission of Remorantin, Session 20th January, 1838.

"The commission was conveyed to the manufactory of Mr. Saniewski. He had there provided for the fabrication in our presence, of thirty pounds of the farina of buckwheat, which was delivered to M. Lacroix, a baker of reputation, at Remorantin, for the purpose of being manufactured into bread for experiment.

"*Session of* 22*d January*, 1838.—The progress of manufacturer of the trial bread was gone through with in the presence of the commissioner, in the bakery of Mr. Lacroix, in the proportions indicated in the table following:

No. of composition.	Pounds of Farina of Buckwheat.	Wheat.	Rye.	Total of composition.
1st	3	3	0	6
2d	4	2	0	6
3d	2	0	2	4
4th	4	0	2	6
	13	5	4	22

RESULTS OBTAINED IN BREAD.

Qualities.	Pounds weight after baking.	Weight 24 hours after.
1st,	6.12	6.1
2d,	7.2	6.2
3d,	6.10	4.9
4th,	7.14	7.

This operation leads us to the following observations:

The season was cold, and it was difficult to obtain a good fermentation. The bread termed No. 1 was delivered imperfect, and gave a product inferior in quality to that which it was hoped would be obtained from that mixture, and which had been presented us by M. Saniewski. (It should be observed that I had presented bread made at my house, for the use of my family, which was of excellent quality. We had used bread made from buckwheat mixed with wheat or rye, but my wife kneaded it in a warm apartment, and sheltered from the cold, which was excessive at the bakery. I add that it is necessary to make use of leaven for the proper fermentation of the farina of buckwheat.)

There is but one kind of black, compact bread, made by the people of France, from buckwheat, and still it is often very inferior, as the buckwheat is ground with the hull, and is not properly cleaned, but good farina of buckwheat can be employed in other forms besides that of the buckwheat cakes in general use in the United States, as follows :

1. *Small Cakes.*—Knead this farina with tepid water, with salt in due proportion. The mass must not be too thick, but be well wrought. Take small portions of this mass in a spoon and immerse it in boiling water, so as not to diminish its heat, and allow them to remain till they rise to the surface. Then take them from the water and place them upon a dish, and dip them into cold water, and eat them with fresh butter. Warmed and fried, they are an agreeable food, which may be a substitute for bread.

Remark.—I have learned that when fried in pork fat, with onions, they form an excellent dish.

14. When these small cakes have been taken from the boiling water and passed into the cold water, (see 13,) take some diluted broth and season it with butter or lard fried with onions, heat it and pour it upon the cakes, and you have a very nutritive dish, which is everywhere used by the people of the country. The soup is used as a substitute for bread.

Thus, too, this soup may be prepared with milk, immersing the cakes in boiling milk, and diluting it afterwards with water.

Again, when the water is boiling, without taking it from the fire, drop the farina into it, and leave the mass to boil from fifteen to twenty-five minutes. Pour off the superfluous water, and with a wooden spoon knead the paste which is formed, until the farina which is not cooked takes the form of paste. Then take it in a spoon dipped into butter or fat, dividing the paste into small pieces, fry them in pork fat, and you have an excellent dish, which in Poland is called Parka, or ——

This farina used with the farina of wheat in the proportion of three to five, serves for the making of spiced cakes, and gives an agreeable flavor.

The straw of buckwheat is good, mixed with the straw of oats, of barley, or of hay, as feed for cattle or for sheep in time of scarcity, but should be seasoned with salt, and should be fed to them after they have had a little salt water.

Buckwheat is also good for bees, and forms honey of the best quality. The wax made from it is hard and white.

SANIEWSKI FELIX,
Polish Refugee.

KISLICHY.

We gave a recipe for making this European (German) drink, in a recent number, from M. Saniewski, remarking that we thought the quantity of water much too great. We have since discovered that a mistake was made by one of us in transcribing the figures in the printed memoir, to which reference has been made above. It reads thus:

10 pounds of the farina of wheat,
3 " malt, made fine,
3 " of the farina of buckwheat,
50 quarts of boiling water.

Then add half a pound of brewer's yeast or 2 pounds of baker's yeast. The next day stir the whole mass, and add 50 quarts more of water when the fermentation is finished.

WOODLAND.

The decrease in the quantity of valuable timber in this country has been often alluded to in our journals, and much is done in the way of securing new growths. But much more ought to be done, and much that would pay handsomely for the cost.

We publish an extract from the Reports of the Massachusetts Agricultural Society of 1854, which is the result of extensive inquiry and careful observation. It is as follows:

"A class of lands has been already mentioned, with a query whether it would not be true economy to make woodland of them, subjecting others less exhausted to cultivation in their stead. Many thousand acres of poor and worn-out lands may be found in the eastern part of the State and elsewhere, which, for all practical purposes of cultivation, may be considered as worthless, the net profits from them not being worth estimating. Such lands as I have intimated, have already been planted with pitch-pine to a considerable extent; and as many acres have been visited for the purpose of examining the progress of the experiments, it is proper here to state the methods which have been pursued with success.

"The pitch-pine is adapted to a light sandy soil, or to one which has been exhausted by continued cropping. On such a soil it will do well, even in the early part of its growth, if no attention at all be paid to it; whereas, if it stands on rich land, with a deep mould and full of organic matter, the grasses and weeds too often check its early growth, if indeed they do not entirely destroy it.

"The seed of the pine may often be purchased at about one dollar a quart. It is usually gathered in October by taking the new cones from the trees, before they have been opened by the frost, so as to allow their seed to fall. These cones should be kept free from moisture, and dried in the sun, or by artificial heat. When dry, the seeds become loosened and drop from the cones, or they may be threshed out. They are cleaned by rubbing and winnowing. In Europe it is generally considered better to sow thickly in beds; when about three years old the trees are transplanted. This course is not generally pursued here on account of the labor of transplanting, though if the soil were worth any thing for pasturage during these two or three years, it would probably be advisable to adopt it. The seed may be sown either in autumn or in early spring. Many use the hoe for making the holes, and drop the seed by hand; others plough furrows six feet apart and drop the seeds in the bottom of the furrows from one to two feet apart.

This requires too much time and labor if the plantation is to be very large. A simple machine has been contrived for dropping the seed at the proper distance, by which a man with a horse may plant five or six acres in a day, which is quite as much as he could plough with furrows at the distance of six feet in the same length of time. This machine costs from three and a half to five dollars.

"About a quart of seed is generally allowed to four acres. If it be of good quality, this is commonly found to be a sufficient quantity. Probably, however, planting a little thicker would secure a more perfect exemption from any difficulty arising from accident or bad seed.

"The transplanting of young white pines may be effected with safety at almost any season of the year, provided, in taking them up, the bark of the roots is not strained and broken or loosened. The roots may be cut off with much greater safety than their bark can be broken. By careful attention to this precaution more than a thousand young white pines were transplanted by a farmer in Bristol county with the loss of only one or two.

"Among other very valuable trees may be mentioned the yellow locust, on sandy land, both on account of its intrinsic value as wood, and the benefit to dry pasture lands. The Scotch larch has also been planted to considerable extent, and for rapidity of growth, value for timber and beauty, is one of the most desirable additions to the farm. The silver polar on light soils and exposed situations, is also of great value, as are also the white birch, the chestnut, and, as an ornament unsurpassed, the graceful elm."

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

PROPAGATING FROM SUCKERS.

It is hardly supposable that nurserymen would palm off upon their customers suckers for healthy trees. But notwithstanding all that has been written upon the subject, the budding or grafting and transplanting of suckers is a common practice. It seems to me proper, therefore, that line upon line and precept should be given touching this matter. No fact is better established than that a healthy, long-lived tree cannot be produced from a shoot or sucker. The cherry, plum, apple and pear tree will often send up from their roots thrifty and healthy-looking sprouts. These are seized by the unexperienced cultivator as a cheap and expeditious mode of multiplying his stock of trees. He will learn when too late that the sucker is the offspring of disease. No healthy tree produces them. They may grow vigorously for a while, and yield some fruit. But their career will be short, and their greatest yield will be of disappointment. Trees raised from suckers may be known by the profusion of sprouts which they generally send up. They are also dwarfish in appearance; and put forth an excessive number of fruit buds every spring. Very little of the fruit, however, will ripen. It will wither and decay upon the trees in all stages, from the blossom to maturity. Finally, such trees will die suddenly without any apparent cause; leaving to the proprietor no other reason for regret than that their demise had not occurred at an earlier date. I give the results of my own experience on this subject, corroborated by ob-

servation and the testimony of others; and I would say to all arborists that the experiment of raising fruit from suckers is no less futile than that of raising poultry from chalk eggs.
R. R. H.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THINGS TO BE DONE.

Apples which fall prematurely should be promptly gathered and removed. The pigs will be glad of them, and they will do them no harm. These windfalls are filled with insects which have already done mischief enough. If unmolested they will burrow in the soil and prepare for the depredations of the ensuing season.

The enemies of cultivated fruit are already legion; and it would seem as though they keep pace with the improvements in culture and the multiplication of varieties. If we would have good fruit we must not relax our efforts, but persevere, and prosecute the *varments* even unto death.

To this end it becomes us to secure what assistance we can command. The most efficient aids are the birds. Were there enough of them I doubt not they would do the whole work. Let them be protected and encouraged. The Legislature of Massachusetts did wisely at its last session in making it a penal offense to kill robins and some other birds. What better than barbarism is it to break up the nests of such birds, and even shoot them in wanton sport. And how superlatively nigardly to refuse them a few currants or cherries. It is but few they want after having labored faithfully all the season to protect the garden, and make home pleasant with their cheerful music. I, too, would treat *toads* kindly. Why not? They are great workers, devour multitudes of insects, are quiet and unobtrusive in their manners, and do no harm.

True, Milton says, Satan approached the ear of Eve, in position "squat like a toad." But that was no fault of the toad. True merit is always humble. Empty heads are always erect, while those filled with grain are bowed down. Sycophantic fools, who would sell what of soul they have, and allow themselves to be trodden upon if done by the heel of official greatness, are called "Toadies." But this is slander. The toad is a gentleman compared with such. He catches his own flies. He neither fawns nor will be fawned upon; and further, he is said to have something valuable in his head.

Weeds should not be permitted to go to seed in or about the garden or cultivated fields. Noxious weeds, like sins, are wonderfully prolific. There needs but few stocks to seed a large field. To spend the whole summer in labor to subdue the weeds, and then allow enough to mature on the borders to stock the grounds for the coming season, when a few minutes' work, or hours at most, would remove them all, seems very much like litching mint and annis, and omitting weightier matters.

I no more believe that weeds can be killed out, and cultivation become *clean*, than I believe that absolute perfection is attainable in this life. Yet, as in the latter, it is our duty to labor *at* the attainment of so desirable an object. So, in the former, we should aim at extermination, and accomplish all we can.

Scions which were set in the spring should now be looked after. A vigorous growth of suckers will be found to have shot out. These should all be removed, except where the scions have failed. In such cases they should be spared to keep the limb in a healthy condition for subsequent grafting.

The wax should be examined, and if necessary more should be applied, and all the cracks and crevices should be stopped. Whatever is worth doing at all is worth doing well. If worth one's while to graft a tree, it will pay to care for it when grafted.

The secret of failure in fruit growing, in most cases, is want of *continued* care, and the tree may have been judiciously selected and properly planted, but then it is neglected. The budding and grafting may have been well performed and then no more care bestowed. What wonder that no fruit is obtained, that fruit-growing is regarded as a thriftless business? Let the corn plant receive no better attention, and what would be the result? Would not the planter conclude that corn growing don't pay? R. R. H.

OBSERVATIONS ON IN-AND-IN BREEDING.

Not having the honor to belong to the veterinary profession, I do not regularly read your very able periodical, though my attention has lately been called by a friend to an article in the number for May last, on the subject of "Animal Physiology, and Breeding Farm Stock," in which the writer most strongly reprobates the practice of in-and-in breeding. It so happens that I am well acquainted with Mr. Barford, of Northamptionshire, who is mentioned by name therein; and having some opportunities of seeing his management of his sheep, and his practice with regard to in-and-in breeding, I take the liberty of troubling you with a few lines in reply to Mr. Lance's paper.

That gentleman has adduced several instances, or rather related several anecdotes, "as the data on which he founds the argument, that consanguinity in blood among parents leads to degeneracy in the offspring." But, to me, they by no means satisfactorily prove his position. His long quotation from Mr. Lawrence's lectures about the Angola sheep makes rather for than against the practice of in-and-in breeding, as it clearly recognizes the possibility of retaining varieties of animals by "*preserving the race pure*," by selecting for propagation the animals most conspicuous for size, or any other property we may fix on. In this way we may gain sheep valuable for the fleece, or the carcass, large or small, with thick or thin legs; just such, in short, as we choose. The other instances he mentions, as of Hallers, "two noble females," of Mr. Marsh, of Ryton, having produced an "appalling malformation" in the produce of a son with his mother, and others, only prove, what I presume Mr. Lance will at once admit, viz., the truth of the old adage that "like begets like," and that where any imperfections, moral or physical, exist in the parent, they will most likely reäppear in the offspring, whether bred in-and-in or not.

As a set-off to one of Mr. Lance's instances, I may mention that Bakewell found that good qualities were also transmissible, and in as great a degree as evil ones. And it is rather singular that he founded the observation in the results of an experiment (among others) exactly similar to that of Mr. Marsh, having found that a sow of his never bred so good pigs as when put to her own son. And allow me to ask Mr. Lance whether "the deformities of mind and body," which, according to Mr. Lawrence, spring up so plentifully in our large cities, cannot be amply accounted for by the intemperate habits, the vicious indulgences, the vitiated atmosphere, the unhealthy occupations, the undrained and unventilated habitations in which so many of our urban population live and have their being, without having recourse to "the want of selections and exclusions" to which he has alluded? For it must be borne in mind that, in agricultural districts, the same "want of selections and exclusions" exists as in the cities, without, as Mr. Lance must admit, anything like the amount of mental and bodily deformity which "degrades the race" in the towns. And supposing, for the sake of argument, that the state of many of the royal houses in Europe be such as Mr. Lawrence implies, may it not be possible that many generations of luxurious indulgence and unrestrained passions, which, perhaps, are inseparable from their exalted position, may not, by their continued though gradual effect on the constitution, sufficiently account for it, without attributing it wholly to the fact of their being restricted to some ten or twenty families in the choice of husbands and wives? But to return to sheep-breeding.

I gather, from what Mr. Lance implies rather than from what he says, that he imagines Mr. Barford allows the most promiscuous and indiscriminate intercourse among his flock. There cannot be a greater mistake. The most continued vigilance is exercised to prevent the propagation of any defect, should they appear, and, to use Mr. Lance's own words, "it is only the best that are allowed to continue the race." In this I presume Mr. Barford only follows the example of every other breeder; and not to do so, would at once stamp a man with the most ridiculous imbecility.

If the cousins, of whom Mr. Lance has spoken, if the white breed of fowls in Hampshire, if Mr. Marsh's hogs, if the "silly" sheep in Wiltshire, in fact, if the subjects of any of the in-breeding experiments he mentions, had any "deficiency of nervous energy," and "weakness of malformation," in short, any defect whatever, it is evident to the narrowest mind that the nearer the affinities, and the longer they are bred so, the more decided these defects become. But it must be absurd to attribute them to the bare fact of in-and-in breeding. Mr. Lance must prove that all cross-bred animals are free from all defects, before he can say that. In fact, I should regard failure in in-and-in breeding experiments as the most irrefragable evidence of defect in the parent or parents, and nothing more. I often think that it must be to misapprehension on this point that much of the unmitigated hostility to in-and-in breeding is to be attributed. People, by some means or other, get hold of the idea that the advocates of the system mean universal and indiscriminate in-and-in breeding, than which nothing can be more absurd.

But let us see where Mr. Lance's favorite system will lead him when carried into practice. As the end and aim of all crossing is of course improvement, all breeders may hope to (nay, if the theory be correct, they *must*, at some period or other,) reach a point beyond which there is no improvement to be made by crossing; that is, they will produce a perfect animal, or, at least, one more perfect than anybody's else. Now, sir, allow me to propound this question to Mr. Lance: When a man has arrived at this point—when he has exhausted every source of improvement which the kingdom, nay, which the world affords,—what is he to do? It is evident he must adopt one or the other of the following courses: Either he must feed off and consign to the butcher both his males and females, without any more ado; or he may allow them to live to an unprofitable maturity, and a useless old age, and die at last a natural death; or he may call in Mr. Stafford, and disperse to the four quarters of the globe the fruits of perhaps a life-time of care, trouble and anxiety, besides enormous expense, and begin again *de novo;* or he may knowingly and with his eyes open, by crossing them with animals inferior to themselves, retrograde, step by step, to the mediocrity and inferiority with which he set out in the first instance; or, his last resource, he may by in-and-in breeding, attempt to propagate them perfected as they are, and thus retain for his country and himself the benefits which such a race of animals must necessarily confer. But such is the amount of obstinate prejudice now entertained against this system that we might expect to see many gentlemen, perhaps Mr. Lance himself, adopt any of the above sources rather than the last. This is a suppositious case, but substantially it may be said to have occurred in the instance of Mr. Barford's flock, as the following rough sketch of its history will show.

About the year 1786, the late Mr. V. Barford commenced sheep-breeding. He hired rams of Mr. Robinson, of Wellingborough, who was a disciple of Bakewell, of Dishley, and bred from his stock. Mr. Barford continued to do so until about the year 1810, when the present Mr. Barford, considering his own sheep as good as Mr. Robinson's, and not being able to find any that he thought calculated to improve them, was really placed in something like the dilemma which I have above mentioned. However, in-and-in breeding had no imaginary terrors for him, and therefore he boldly adopted the last of the courses which I have enumerated; so that, by necessity, even if he had not from choice, he must have become an in-and-in breeder. I will not take upon myself to say that he has succeeded; but I do ask any gentleman who is skeptical of the possibility of the thing to visit him, and inspect a flock of which every individual sheep has a pedigree than can be traced back for upwards of forty years without a cross!

With such a fact as this before me, Mr. Editor, and with the still more significant one that the Jews have bred from the closest affinities from the very time of their father Abraham, without any deficiency of nervous energy, or any physical or moral degeneracy, I think I may be justified in declaring my firm opinion that the explanation of the numerous and palpable defects in man and animals, in modern times, must be sought in other reasons than the system of breeding Mr. Lance so strongly objects to.—OMEGA, *in The London Veterinarian.*

A GRAND NATIONAL EXHIBITION OF STOCK.

THE United States Agricultural, Society under the Presidency of Marshall P. Wilder, does not not prove to be a mere opportunity for holding office, nor its official stations mere sinecures, as some predicted. Some of the largest and best exhibitions in the country have been under the auspices and through the agencies of this Society.

Another exhibition of stock is now contemplated at Boston during the next month, as will be seen by the following official notice. We commend this to the attention of stock growers and amateurs, and all lovers of agricultural progress throughout the country. Improvement in stock lies at the foundation of all improvements, bearing directly upon improved feed, more economy in the selection and proportion of the various crops of tillage, pasture, etc., and creating in fact a sort of more necessity for improvement in every department of agricultural management. We commend this exhibition to the public favor as promising to be one of the most interesting exhibitions ever held in New-England.

CIRCULAR.

A Grand National Exhibition of Stock.—Horses, Cattle, Sheep and Swine—open to competition to all the States of the Union, and to the British Provinces, will be held by the United States Agricultural Society, in the City of Boston, on Tuesday, Wednesday, Thursday and Friday, October 23d, 24th, 25th and 26th.

Twenty-Thousand Dollars have been guaranteed by patriotic gentlemen of Boston and its vicinity to defray the expenses; the City of Boston has generously granted to the Society for present use, a fine public square of fifty acres; and Ten Thousand Dollars will be offered in Premiums, in the various departments.

The previous Exhibitions of this Society—at Springfield, Mass., in 1853, and at Springfield, Ohio, in 1854,—were eminently successful, and no efforts will be spared to make the present Show, combining as it does, the Four Great Departments of Farming Stock, superior to its predecessors.

The Premium List, with the Rules of the Exhibition will be forwarded to all who will address the President, or Secretary, at Boston, to that effect.

It is earnestly hoped that all Breeders, and owners of Fine Stock will feel it to be a duty, as it certainly is for their interest, to contribute for the Show.

The List of Entries, Exhibitors, and Award of Premiums, and all the proceedings of the Exhibition, will be published in the Journal of the Society, for 1855. Annual Members of the Society, who desire to receive the Journal, should remember to renew their subscriptions.

MARSHALL P. WILDER, President.

WILLIAM S. KING, Secretary.

BOSTON, AUGUST, 1855.

☞ Editors favoring the objects of the Society, will please give the above an early insertion, and notice.

AMERICAN INSTITUTE—ANNUAL FAIR.

THE Twenty-seventh Annual Fair of the American Institute will be held in the Crystal Palace in this city in October next, and we cut the following from the circular which has been issued:

"The Twenty-seventh Annual Fair of the American Institute will be opened in the City of New-York on the third day of October, 1855, and continue during the month.

"The Managers announce to the Manufacturers, Mechanics, Inventors, Artizans, Farmers, Gardeners, and all others interested, in the United States, that they have secured the Crystal Palace, erected in 1853 for the Exhibition of the Industry of all Nations, in which to hold the Twenty-seventh Annual Fair of the American Institute.

"This magnificent and spacious building will afford unusual facilities for the arrangement and display of the various specimens of *Art* and productions of *Nature*. Steam-power will be provided, to put in operation Machinery of every description, and the Managers pledge themselves to make every exertion in their power to effect such arrangements, for the accommodation of exhibitors, as will secure the great ends of the Exhibition.

"Premiums of Gold and Silver Medals, Cups, Books, and Diplomas, will be awarded to the Exhibitors of articles deemed worthy of such distinction, by competent Judges appointed for that purpose.

"Practical and disinterested persons, acquainted with the several branches in which they shall be appointed, will be selected for Judges, to whom all articles for competition will be referred, in order to secure the same satisfaction that has heretofore been given, in the bestowal of the awards of this Institute. To insure a perfect impartiality, the By-Laws of the Institute prohibit 'any premium being awarded by the Board of Managers to any Member of their Board, to any of the Trustees, or to any of the Standing Committees of the Institute, or anything in lieu thereof.'

"The awards will not be confined to specimens prepared expressly for exhibition; but when articles are entered as being of ordinary manufacture for general consumption, full weight will be given to that fact, as showing the actual state of the particular branch to which they belong.

"The Managers desire strongly to impress Exhibitors with the necessity of furnishing information, at an early day, of the description of articles they intend to exhibit, and the space required for their proper display."

The Managers are striving to make an exhibition that shall do honor to all concerned, and will furnish all the facilities in their power to satisfy both exhibitors and visitors. They offer peculiar inducements for the exhibition of steam-engines, and building materials, natural or artificial, and also for Designs, Sculptures, Paintings, etc. The products of agricultural and household industry, of course, are among the necessities of such an occasion. We hope the public will give their attention to this. Mr. John W. Chambers is the Secretary of the Board of Managers, and may be found at the rooms of the Institute, 353 Broadway.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

PROVIDENCE, Wednesday, Aug. 15.

THE American Association for the Advancement of Science commenced its Ninth Annual Meeting in the chapel of Manning Hall, Brown University, August 15th.

The officers of the Association are as follows:

President—Dr. JOHN TORREY of New-York.

Permanent Secretary—Prof. Joseph Lovering of Cambridge.

Treasurer—Dr. A. L. Elwyn of Philadelphia.

General Secretary—Dr. Wolcott Gibbs of New-York.

The meeting was called to order by the President, Dr. TORREY, who at once introduced to the Association the Rev. Dr. Wayland, President of Brown University.

He gave them a very handsome welcome. We make the following abstract of the discussions of especial interest to the public from our city dailies.

ECONOMY OF HEAT.—The first paper read was by Prof. HENRY, on Combustion. He had based his experiments on a paper by Count Rumford, stating that when the sides and back of a grate were composed of fire-brick and heated red hot they radiated more heat than the fire itself. When a fire was made of coals and small pieces of fire-brick it gave out a much greater amount of heat and the cinders were entirely consumed. The same effect was produced by the mixture of fuel and clay. Count Rumford had given no account of the cause of that phenomenon. He had repeated the experiment and the result appeared to confirm the experiments of Count Rumford. He then varied them with flames of hydrogen and alcohol and different substances, carbonate of lime, glass, stone, coal, and clay. Carbonate of lime produced the greatest effect. It had long been known that a piece of platinum wire in a flame would increase the radiation of light, and these experiments proved that the radiation of heat was increased in like degree. We could not suppose that the absolute amount of heat was increased. The most probable conjecture he thought was, that the heat of combination was converted into radient heat. To test this he had placed a platinum wire in the apex of a flame and introduced a slip of mica, one-fifth of an inch in breadth, vertically beneath it. The wire immediately diminished in intensity of light and of radiant heat, so that while the mica itself was radiant with light and heat it was evident that its introduction cooled the flame above it, verifying the idea that the intensity of radiation was produced at the expense of the heat of combination. So if fuel was to be employed in the evaporation of water by combustion under a kettle, its effect would be diminished by any substance intervening between the flame and the kettle, and the flame ought to be made to strike directly on the kettle with considerable force. But a very different fire was required to warm a room. In that case, radiating substances might be employed to advantage.

TEMPERATURE OF THE PLANETS.—In a discussion on this general subject Prof. Agassiz stated that at very remote times there was a similarity of animals in the polar and equatorial regions, indicating a temperature so nearly equal as not to be capable of explanation by any other hypothesis than that of interior heat. He did not think, however, that we should find it so gloomy on the surface of Mars as the gentleman had supposed; he thought we should see something more than red snow. In his wanderings on the Alps he had seen Cerastæ in full bloom at an elevation of 11,000 feet above the level of the sea. He had found several mosses also in the same situation.—A kind of Podura was frequently found in the fissures of the glaciers, and besides even the genus of the Cyclops and others which would make quite a Fauna and a little Flora were they examined and stated.

Prof. Loomis reasserted that the earth had not sensibly lost heat for 2,000 years.

Prof. Pierce stated that we never saw the body of Saturn, and it was always heated to a whiteness and we only saw the cloud above it.

Prof. Chase said that we knew that light was as necessary to vegetable life as heat was to animal life. He would inquire, then, where the light necessary to vegetable life on the more remote planets came from? How was it to be supplied? Did light radiate from the internal heated nucleus?

Prof. Henry said that this whole subject belonged not to the domain of actual science but of scientific speculation. It did not strike him that the same matter must be found in all the planets, even if we adopted the nebular theory of condensation. The condensation of different material would take place at different epochs. He thought the proposition with regard to light was a very striking one. The dynamic power, which decomposed the carbonic acid necessary for organic forms, was found only in the chemical ray. The Sun was yet a great source of heat and life. Its strength however was wasting away.

> "The Sun himself shall fade, and ancient night
> Again involve a desolate abyss."

With regard to the changes in the Earth's temperature, the data were not very precise. There were conditions which militated against the results ascertained. He instanced the effect of the Moon in retarding the velocity of the Earth. The argument that the Earth had not perceptibly cooled within 2,000 years was based on the fact that the siderial day was now the same as then, and it would have shortened had the Earth shrunk by cooling. When certain substances became solid they became enlarged. His own view of the inhabitability of the planets was that the outer planets had passed that condition which was necessary to organized life, and the interior had not yet come to it. On the Earth organization had evidently commenced at the poles, and had gone out there while it was still luxuriant at the equator.—It was destined to go out there also.

Mr. Gould would ask the grounds on which Prof. Loomis stated the earth's temperature had not changed for the last 2,000 years. Prof. Winlock and he had convinced themselves that they could see distinct traces of an atmosphere around the surface of the moon. Twilight distinctly appeared, and he could only attribute it to the atmospheric influence. At each successive lunation during its earlier part they could perceive the lunar disk bordered as it were by a fringe of light. This surface was distinctly bounded. There was almost as much difference between that and the dark surface of the moon as between the light and the dark rings of Saturn, the only interruptions of this boundary being such as would naturally result from the inequalities on the moon's surface. He could not speak with confidence as to the breadth of that portion, but he thought it must exceed two seconds of time.

Calculating Machine.—Thomas Hill of Waltham, read a paper the design of which was to show that there were many cases in which the scientific computor could save time without the sacrifice of any desirable degree of accuracy by substituting construction for logarithmic computation. He had at the suggestion of Prof. Pierce produced a machine by which he had calculated 200 phases of an eclipse in ten hours, scarcely varying a minute from the calculations subsequently published in the Nautical Almanac. The method of construction also had this advantage, that any considerable error became apparent to the eye, since a series of results always in construction runs in a regular curve.

Separation of Alcohol from Whisky by Force of Gravity.—Prof. Henry then detailed an experiment which was made at the Smithsonian in consequence of the granting of a patent for the separation of alcohol from whisky by placing a considerable quantity in a vertical tube. The patentee stated that by the use of a tube 100 feet in height he had separated 100 gallons of alcohol in 12 hours. The experiment was made in one of the towers of the Smithsonian, with a gas-pipe 160 feet long, into which stopcocks were inserted at various lengths. A most careful examination of the whisky at the various heights was made at the end of a few hours, and also at the expiration of some months, but no more variation could be discovered than in different samples of the same whisky not subjected to the process.

The patentee had, however, obtained his patent and sold several rights at a high price. A paper was read at the last meeting of the Association announcing this discovery. The gist of his remarks was that the Patent-Office, the Smithsonian, the Association, and the country, had been sublimely humbugged. (*End of first day's proceedings.*)

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

BRITISH OIL AND OIL OF SPIKE.

As the farmers in this vicinity are much in the use of a nostrum named British Oil, and another of similar virtue called Oil of Spike, I send recipes, that those who wish may prepare them for their use.

BRITISH OIL.

℞ 8 Fluid ounces Spirits Turpentine,
do. do. Oil Linseed,
4 do. Oil Juniper,
4 do. Barbadoes Tar;
Mix thoroughly.

OIL OF SPIKE.

℞ One pint Spirits Turpentine,
Two ounces Oil Lavender,
Four ounces Barbadoes Tar;

Much used for sprains and bruises in cattle and horses.

HYDE PARK, July 19, 1855. ARIEL HUNTON.

ARTIFICIAL STONE.

SCIENCE and art have united, in recent times, in many useful discoveries and inventions that bid fair to make a thorough revolution in the departments of art with which they are connected. Among these, the manufacture of new materials for buildings and other structures, hitherto made only of marble or other mineral, expensive and difficult to work. A fictitious or counterfeit substitute for marble is found in the marbleized iron, which is valuable in its way. A far more valuable substitute is found in the Silesian marble, an artificial composition, which we described some months since, and which promises much. We now are offered another material, which seems to promise great things. A mere view of these products does not enable one to judge of its durability, but the chemical combinations which occur in the mixture of its ingredients do furnish testimony to a great extent reliable, and this testimony in this case is favorable.

The stone to which we refer is that manufactured by the "American Artificial Stone Company," whose works are in Newark, N. J., and are known as the Hamilton Works. The inventor is Mr. Thos. Hodgson, but it is now under the management of a Mr. Wood.

The stone is composed of sand, sulphate of lime, and blood, and produces an imitation of the old red sand-stone, popularly called freestone, now used so abundantly in our city architecture. The chemical action which gives hardness and insolubility to the compound is thus explained:

1. The sulphate of lime possesses the peculiar property of hardening, after being mingled with water, in the form of powder, so as to form the consistence of cream. If suffered to stand, it rapidly becomes hard, and refuses to yield a second time to the action of water, but is to a great extent in that form insoluble.

2. But the strongest adhesion and its utter insolubility which occurs, is the result of a combination of the potash in the blood with the silex of the sand, forming the silicate of potash, which is insoluble. The iron of the blood also which pervades the mass, acted upon in different ways, unites with oxygen and forms an oxide of iron, insoluble in water. This product grows harder and becomes imperishable by continual exposure to these influences, and is thus made a durable and cheap material for ornamental architecture. By the use of moulds of various kinds, it may be formed, like the Silexian marble, into any desired shapes, whether of statues, bas-reliefs, lintels, trusses, etc. Garden ornaments are also manufactured by this company, although we understand from their pamphlet put into our hands, that their purpose is to sell the moulds, with the right to manufacture, rather than to manufacture themselves.

At a meeting of gentlemen interested in this subject, recently held in this city, remarks were made by Prof. Mapes, so replete with interest, and so thoroughly endorsing and carrying out our own views in relation to a reform in our architecture, as presented in a recent number of this journal, that we present them in full, so far as they bear upon this subject or upon the importance of the invention.

"I conceive the great advantage of this invention to be apart from its durability as a building material: Its use for building purposes will be great; but in addition to this, it will enable us to avail ourselves of the designs of sculptors through all time, for our current use. The mould once made, we may give in a single hour that which required the labor of a lifetime to compose. The study of the arts of design has been materially neglected in our country, and the duplication of these ornaments will have a tendency to correct the evil; for when the finest designs shall be found covering the exterior of our buildings, the eye of the rising generation will, without its volition, be educated to recognize the finer class of forms. Look at France, as an example: she warred with half Europe, without colonies to pay tribute, or agricultural products to export; and all this arose from her placing Christendom under contribution for her arts of design. Napoleon made the arts of design a part of the common-school education of France; and every apprentice, while he learned to read his language, also learned to comprehend the beauty of graceful forms, until even the silversmith of England found it his profit in copying the designs of the tinsmith of France; for up to the time of Wedgewood, every piece of pottery made in England was but a copy of the grotesque forms of those made by the Chinese. Wedgewood introduced a school of design in his factory, and thus rendered the manufacture of porcelain, china, etc., one of the greatest industries of his country. At one time, three quarters of the members of the Royal Academy who had received the degree of Academician, were found to have emanated from Wedgewood's school.

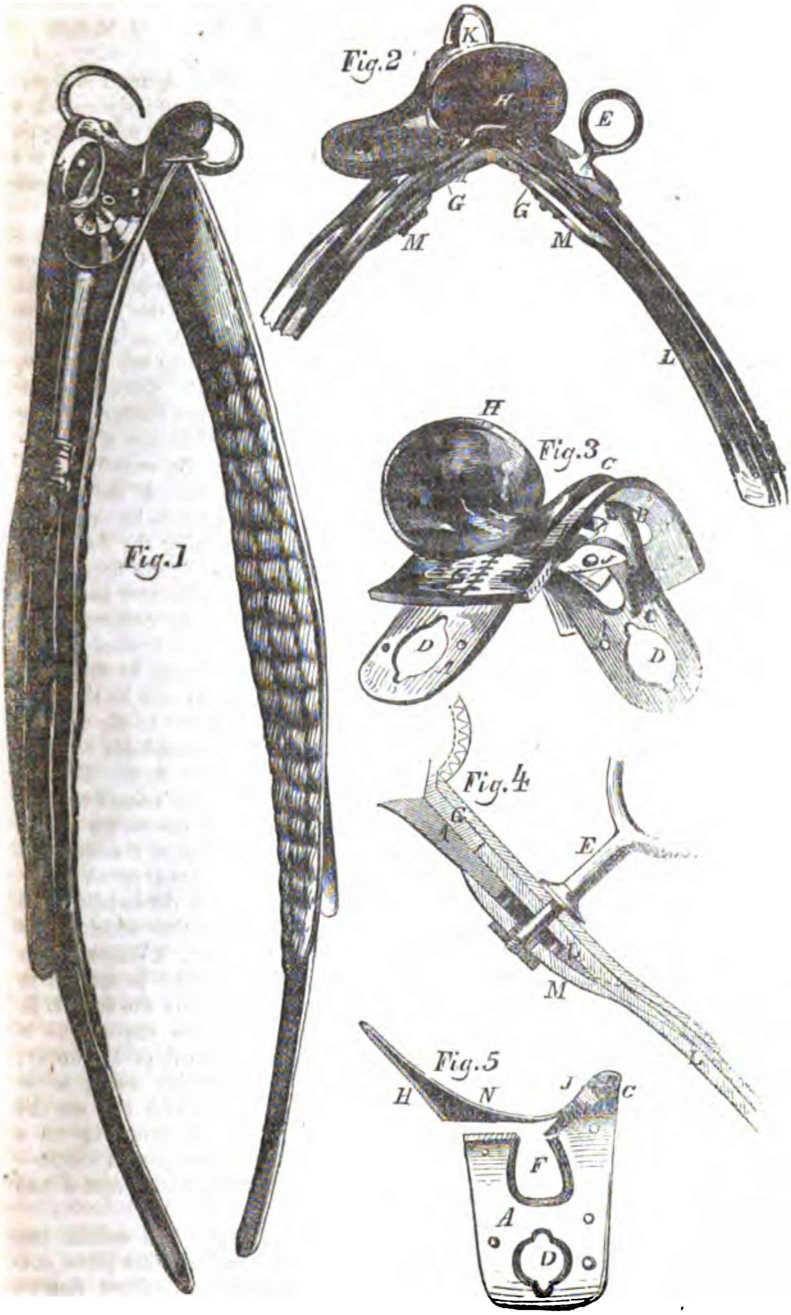
Last year, we imported twelve hundred thousand dollars worth of French furniture, the wood and workmanship of which was inferior to our own; but the designs were more graceful; and our wealthy citizens will continue to pay for these designs until our mechanics shall become better educated in the arts of design. Rest assured the eye may be cultivated even beyond its own volition. He who can draw the letter S (which is an approximation to Hogarth's line of beauty) with accuracy, can never be guilty of building an ungraceful utensil. Look about this room, observe the figures of the carpet, the curtains, the form of the girandole, and the graceful form of the backs of those sofas, and you will find that all these designs were originally taken from the French, before which our furniture was grotesquely square and wanting in beauty. A pound of American cotton is still returned to us from France a thousand times increased in value in the form of French laces embracing French designs. Even French calicoes of new patterns when first introduced, are purchased by our wives and daughters at a price which pays the French manufacturer four hundred per cent. more for his designs than we can procure for calicoes of the same quality with designs of less beauty.

"From all this you may readily perceive, that when Mr. Wood shall have ornamented the exterior of our houses with copies of the finest designs, more cheaply than we can now use the plainest surfaces, the eye of our youth will become educated with these beautiful forms, until our cabinet-makers, blacksmiths, and so forth, will produce designs of greater beauty than those now made. At this time the frames of steam-engines and other machines are parallelograms supported on straight legs, while the line of force is often in another direction. Why should we not copy such forms as are suggested by Nature's laws; When a lion leaps from an eminence, his foot represents the smallest amount of material arranged in such form as to exercise the greatest amount of resistance.

"And why should not these be copied in the frame of every steam-engine? Why should not our mantles be sustained by caryatides, figures of Hercules; or, at least, some figure indicative of strength? Why should our doorways be square frames, requiring but a rope suspended in the middle, to imitate a gallows? Fortunately these remarks will not apply to the doors of this room. Ornamental architecture may, ere long, relieve us from the use of square rooms, causing us to feel as if confined in a packing box, with a window in its side. All angles may be relieved by ornament, until this feeling of confinement is done away with.

"The invention of Mr. Wood will be one of the greatest engines to relieve architecture of its sameness, and will entitle him to the thanks of the public. Its beauty is in its simplicity. It carries with it, its own rationale, for success, and after time has permitted all the necessary chemical changes to take place, it will then be found capable of being immersed in water without change.

"When we examine the structures built by the Romans, we are surprised to find the mortar harder than the stones; but by reference to Vitruvius, we find that the Romans made their mortar many months before its use; that the quantity of lime used was much less than is now applied; but that immediately before its final use, it was beaten with cleaver-shaped pieces of wood, until the Silicate of Lime formed, was fairly and evenly divided throughout the mass; and that its peculiar hardness arises from the absence of any excess of lime, and the perfect conversion of the small amount used into the silicate; which fact is analagous to the rationale we have already explained, as belonging to the invention of Mr. Wood. The finest of our Fifth Avenue houses may be imitated or improved upon, with this material. We want but the moulds, and the duplicates can be rapidly and cheaply furnished."



IMPROVED HARNESS SADDLES AND TREES.

THE annexed engravings represent an improvement in first-class harness saddles and trees, for which a patent was granted to Robert M. Selleck, of this city, on the 7th of last November.

Figure 1 is a perspective view of the improved saddle; figure 2 is a perspective view of a saddle partly finished, viewed from the rear; figure 3 is a perspective view of the tree as prepared for the saddler to work upon; figure 4 represents one-half of a partly finished saddle in section, and figure 5 is a vertical longitudinal section, showing the tin seat of the saddle. The same letters refer to like parts.

A represents the cast-iron frame or tree, upon which the saddle is constructed; B B are the shoulders cast on the sides of its head, C; D D are circular holes for the terrets, E E, to pass through, as represented; F is an oblong slot cut through its top for a tongue or tack-hold on the gullet piece to pass through; G is the gullet piece. It is provided with an opening in its center, and fits over the tree. This gullet piece fits against the shoulders, B B, and its top surface stands even with the head, C. Owing to the shoulders being formed on the tree, the full thickness of the leather forming the gullet piece can be employed without increasing the thickness of the saddle. The gullet piece can also be extended back under the cantel, H, and crupper, I, and be made to form part of the flaps, as shown. If the shoulders were not formed on the tree, the gullet piece would have to be skived off, and fitted in and tacked to the front of the frame or tree after the flaps have been fitted in their places, and the edge of the piece uniting the flaps at the back of the tree will also have to be skived off and fitted in and tacked to the back of the tree, as is done in constructing saddles on the common wood trees. By this arrangement the front and back of the gullet piece on the common tree can be made in one, and of the same thickness as the flaps, L L, and owing to no tacking and fitting-in being necessary, can be arranged on the frame by the tree-maker before the tree is delivered to the saddler, and made to serve as a tack-hold or soft substance for the saddler to work upon, and when the saddle is completed, form part of the flaps. By thus fitting the gullet piece the bolts which secure the crupper will serve for securing it in its place, and the back edge of the leather which covers the saddle can be secured under the cantel, instead of to the back edge of the tree, and considerable time and labor saved, and a more solid and also a much handsomer and neater appearance given to the back portion of the saddle; J is the tongue or tack hold, to which the front end of the leather which covers the seat is tacked. This tongue forms part of the gullet; it passes down through the slot, F, and under the head, C, of the tree, and is secured in place by the gullet hook, K; M M are tongues formed on the flaps, L L. These tongues serve as blocking, and also as receptacles for the sockets of the terrets, it passing under the frame or tree, A, while the flaps lay on it; N, figure 5, is the false tin seat, arranged on the cantel (which owing to its being formed by itself, can be made of any desired shape) and also on the frame or tree, A. As this seat is made of tin, and can be struck up on a die, the part which fits the cantel may be made to form a perfect circle—instead of having its sides nearly verical, as is the case when the cantel and seat are cast in one piece.

The nature of the improvements consist, 1st, in a cast-iron saddle tree having a depression formed on each side of its head, and a gullet piece constructed and arranged upon it in such a manner that it can be fitted flat on the tree, with its top surface even with the head of the same, without the necessity of its being skived down and tacked to the front and back of the tree, as when placed on a wooden tree. The gullet piece can also be extended back under the cantel and crupper, and secured, and a portion of it can likewise be secured and carried under the head, and by the gullet hook. By extending the gullet piece backwards it is made to form part of the flap, and owing to its being thus extended, and a portion of it carried under the head, it serves as a tack hold to work upon in covering the seat with leather. The second improvement consists in providing the flaps with tongues, which pass under the lower parts of the frame while the flaps pass over it. By thus constructing the flaps, no other blocking than that afforded by the tongues is required under the frame. A third improvement consists in making the seat of tinned sheet iron, and separate from the cantel. This invention possesses manifold advantages over anything heretofore known. As it enables the most ordinary workman to make a first-class saddle on an iron tree. Heretofore none but the best workmen with safety could be put to work on a first-class saddle. Saddles can in this manner be made of greater symmetry with increased strength and durability. The tree itself can be afforded at a much less cost than heretofore, and a saving of about half a day's labor on each saddle is effected, and thereby saddles of the first-class can be afforded at the same price as one of the second-class made on an ordinary tree.

More information may be obtained of Mr. Selleck, at his place of business, 253 Pearl street, this city.

NEW BUILDING MATERIALS.

A GENTLEMAN exhibited to *The Traveller* a few days ago a very beautiful specimen of a new description of brick, which, if all that is said of it be true, may probably effect quite a revolution in the building trade. The bricks in question are formed of lime and sand, and are the invention of Mr. Ambrose Foster. Acting on the established fact, that hydrated (wet) lime, when exposed to the action of the atmosphere again, takes up the carbonic acid which it lost in the process of burning and slacking, and so becomes indurated, Mr. Foster set himself to work to find out the proper proportions of sand and lime to form a species of sand-stone. These he found were one part lime to twelve of sand. He also found that in order to effect a more perfect combination, the lime and sand should be mixed together in a nearly dry state. The mixture is then run into moulds, and subjected to great pressure, as much indeed as 120 tons upon a single brick of the ordinary size. When placed out in the atmosphere, a chemical change begins. The moisture of the atmosphere enables the lime to again take up the carbonic acid, and the whole is transformed in the course of a few days into brick of remarkable hardnesss, ready for ordinary building purposes.

The surfaces now present the appearance of a whitish sand-stone, while month after month, and year after year, the same chemical changes are going on, and the bricks become harder and harder, till at last they are said to be as indestructible as granite itself. The bricks are also, from their nature, impervious to damp, and one great advantage is, that from their smoothness and beauty, lathing and plastering becomes unnecessary, and the outside and inside of a wall is made at the same time. Owing to their great strength and hardness, these bricks can be manufactured with perforations, as in the specimen which was shown to us. This is a saving of material, and gives many other advantages.

Lime and sand, it is well known, are more plentifully scattered than the clay from which the common brick is formed, consequently Mr. Foster's invention will materially decrease the cost of building, since by the machinery of manufacture, which is portable, they can be made in almost all localities more cheaply than the most common brick. Metallic oxides may, where necessary, be incorporated with the materials so as to give any shade or colors required, or produce an almost indestructible imitation of any kind of marble or stone.

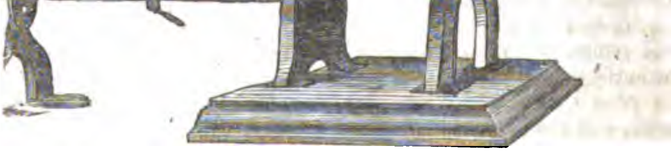
We understand that M. & J. H. Buck & Co., of Lebanon, New-Hampshire, who are the agents of the patent and manufacturers, are about to erect a dwelling-house in North Danvers, of this new material. An opportunity will thus be afforded of testing its strength and durability.

SOCIETY OF ARTS EXHIBITION IN PARIS.

The London Practical Mechanics' Journal contains an illustrated chapter on the details of this exhibition.

Photographic Views of Carriages.—Harper & Co., Coachbuilders, of the Haymarket, have applied this new process to the production of perspective views of carriages. This gives them a complete portfolio, from which purchasers may make orders, fully understanding what they order, which otherwise, even if reference is made to small diagrams, can scarcely be said to be practicable.

The Circular Plate-Cutting Machine, exhibited by Messrs. Sebley, of Ashton-under-Lyne, is prominent in the collection. The representation of it is here given.



This sketch is a hand machine as it stands on a table. A pair of horizontal shafts, geared by equal-sized spur pinions, are turned by a winch handle, while each shaft has at its opposite end a circular shear-edged cutter. The plate to be cut is clamped by a central screw in a recessed bracket holder, adjustable to the size of cut desired. The helix upon the upper cutter shaft is to allow of the necessary movement in cutting different thicknesses of plates. Different sizes are made, cutting from six inches to six feet in diameter. One now at work cuts ½ inch plates to 12 inches in diameter, in ten seconds.

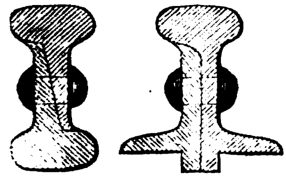
The American Fog-Horn, as used on the Lakes for signaling in dense fogs. "It produces a stunning sound with a mere zephyr breath, and when the full power of the chest is given out, an immense volume of sound is given out."

A Smoke-preventing Furnace, with movable chill-bars, by Mr. Regan, of Liverpool, the object of which is "to give a regulated supply of rarified air to the gases of combustion."

A Railway sanding Apparatus, and Driver's Time-keeper, by Mr. J. Beal, of Chestnut.

The Patent Crystal Window of Messrs. Lloyd & Summerfield, is a very elegant adaptation of glass to a new purpose, the framing pillars of large windows, such as shop-fronts. "Boxwood and Printers' ink will not copy the wonderful hues reflected by such resplendent masses of artificial crystal." These fronts consist of plate glass exclusively, supported by flint glass pillars or sash bars. Hence the transmission of light to the interior of the apartment is perfect. The larger pillars are made in detached lengths, which are bound together to form a single solid pillar, by a metal tension rod, passing through the centre from end to end. This binding is covered by a silvered tube, which materially adds to the luster of the glass.

The Hand-barrow Ambulance is scarcely more than a wheelbarrow frame, with a bed tick or canvas instead of a wooden floor, properly pillowed, the wheel of which is capped, for carrying the sick and wounded. The wheel may rest on springs.

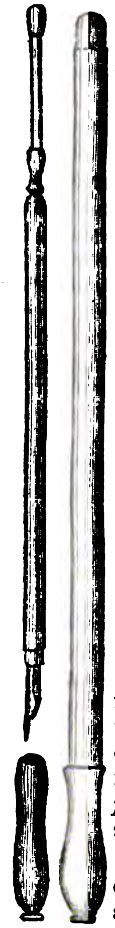


Mr. Jee's Continuous Rail, for railways, represented in the margin, is simply a rail in longitudinal halves or sections, fastened together by bolts or rivets to produce a solid rail.

Steamboat Statistics.—The Cincinnati *Gazette*, of Friday, publishes an interesting statement prepared by W. W. Guthrie, Esq., Local Inspector, showing the number of steamboats in existence on the Western and Southern rivers, and the number of disasters for the six months ending June 30th, 1855. From this it appears that 39 boats were totally lost. The estimated damage to boats was $573,700, and to cargoes $1,229,800. Thirty-one lives were lost. Twelve steamboats were destroyed by fire, 7 were damaged by ice, 52 were sunk or damaged by snags, 5 were damaged by explosion, and 7 by collision. The whole number of boats on Western and Southwestern rivers is put down at 600. Mr. Guthrie says:

"It is worthy of remark that there has been no explosion or collapse of flue of any boiler manufactured since the passage of the law by Congress of August 30th, 1852, and coming under the reduction of steam pressure. In every instance, the disasters have been from boilers made previous to the passage of that law."

PRINCE'S PROTEAN PEN.



WE are now permitted to give a representation of this "Fountain Pen," and do not hesitate to revert again to it as an invention of great value. We were in error in describing the interior spring as gold. It is all of vulcanized rubber, "Goodyear's patent," and beyond the power of any acid to corrode or injure. We have now used one of these pens for some two months, and so pleased are we with it that we are dissatisfied when obliged to take up any other, for continuous use. If we would write only a receipt, (a duty too seldom called on to perform,) or other similar service, any pen answers the purpose. But we have now been writing some two or three hours; and had we been obliged to use a common metalic pen, after the experience we now have, we should deem it a real misfortune. The letters are formed with a gold pen, selected like any other, to suit your own taste. But we are saved the danger of spilling ink upon our table from the pen, or upsetting the inkstand, and from reaching after ink, and can occupy the entire table with books, or papers, or other conveniences, as we may wish. We have filled our pen one day and used it for two days in succession, without having recourse to the inkstand. True, we did not write a quire of paper during that time, though we covered several sheets on each of these days.

Read again what we have said heretofore on this subject, and send the bill to us for damages, if, on trial, every word we have written is not literally true. We never commend anything in these pages further than we are willing to be judged by the results. Nor have we any kind of interest to advance by giving publicity to these statements.

The following directions for its use are given us by the inventor :

"To fill the reservoir with the PISTON, remove the cap by turnit like a screw, insert the pen in the ink half an inch or more, draw up the piston, then with the thumb and finger on the lower part of the piston, draw it up tight into the head of the tube that it may neither move nor allow any pressure of the air. *Wipe the pen with a soft cloth or paper after filling and whenever the cap is removed.*

"The piston is not to be pushed down until the ink is entirely exhausted. To push it down, place the thumb and finger just above the tube, that the piston may not be broken.

"Put the cap on lightly when the pen is not in use, to preserve the ink from drying; and screw it home to its shoulder when carried in the pocket.

"To fill the reservoir by SUCTION, (the mode adapted to pocket pens,) loosen the small screw at the upper end, but do not take it out; insert the pen in ink, as above; apply the lips to the small screw, exhaust the air by suction, and while the pen remains in the ink, turn the screw until it is in tight. Or, loosen the screw, insert the tube in a bottle of ink, let it remain until the ink has found its level in the tube, then turn the screw until it is tight, and the pen is ready for use.

"The suction pens should be carried in the pocket with the cap upwards.

"Use good ink, free from sediment: Headly & Field's American Fluid, also Bryan & Wilcox's, and Arnold's Fluid Ink, recommended to the public, as they will copy."

American Patents.

TALBOT'S IMPROVED LOOM.

Mr. William Talbot, a practical manufacturer in Willimantic, Ct., has lately made some valuable improvements on the loom, adapted to facilitate and perfect the weaving of bags, ducks, diapers, twills, checks and cassimers. His letters patent are dated November twenty-eighth, 1854. The primary idea of the loom is that of the Jaqueard and the endless chain, so modified, compacted, and so easily arranged and managed, and so quickly adapted to so great a variety of weaving, as to win the approbation and admiration of the most expert workmen in that department of manufacturing.

One great value of this patent, we imagine, will be found in the weaving of bags and pillow-cases, making them *positively uniform*, an achievement of great difficulty, because of the great number of picks in both, and the necessity of measuring those picks, and thus securing a proper bottoming. The improvement can be so arranged, in a very short period of time, as to weave bags, twilled or plain, of exactly uniform length, or of exactly an equal number of picks, day after day, or rather through beam after beam, making a real and strong bottom to each. Those engaged in making bags will easily see the worth of this improvement in the department of weaving. The cards of the Jaqueard and the endless chain are dispensed with by Mr. Talbot, in weaving large patterns. Their places are supplied by two cylinders, the rotary action of one being used in making the body of the bag, and the action of the other being used in making the bottom of the same—the action of the one cylinder giving motion to the other cylinder when the first is desired to be motionless, and the second is desired to be in action.

Another fact about the loom is, that it weaves with a *shed opening both ways*; not a peculiarity indeed, but a fact which every manufacturer of goods, figured in weaving, may desire to know. We have seen a loom in operation having seventeen harnesses, and the shed was broad open, for the free and easy passage of the shuttle, without any great tension of the warp.

The open shed, moreover, is connected with such a particular motion of the harnesses, that when any one or more are either up or down, they have a pause in their motion; a short pause, indeed, but still of great value in giving time for the shuttle to race through its course. In most looms, when a harness attains its greatest height in weaving, or its lowest point, it is made *instantly* to move to the opposite point. This improvement, on the contrary, gives the harness a moment's pause when it is either up or down in its motions.

Connected with this fact of a pause in the motions of the harnesses, while they are at the highest or lowest point, is this other fact, that this improvement secures such a *compensation* of *motion*, as to require but a moiety more power to run it than is needed in the lighter and plainer looms. One or more harnesses up-balance an equal number which is down; and very little power is needed to make them change places, so perfectly is compensation secured.

This peculiarity stands connected with another, which is, that the loom, while moved with little power and noise, can safely and properly be made to move with very great speed. We have seen it going at the speed of one-hundred and thirty picks to the minute, and we know that it can be tended with the ease of the common loom.

The cost of applying this improvement to a common satinet loom is about forty-five dollars; and a new loom constructed after this patent may be made at a cost of one hundred dollars, or thereabouts. It only remains for us to say, that one gentleman, a distinguished weaver and designer, looking upon the loom in operation, says: "On that loom I can weave anything." Any person calling at our office, No. 9 Spruce street, can see some beautiful specimens of its work. One or all the improvements have been adopted already in several celebrated mills. We deem it equal to any discovery made in weaving during the present century. Particular information may be had by applying to Messrs. Rollinson & Talbot, of Willimantic, Ct., or to Messrs. Howe & Converse, Stafford, Ct.

CONTINUOUS WOOLEN SPINNER.

Mr. A. E. Bigelow, manufacturer, in Rockville, Ct., has lately invented and constructed an improved woolen spinner, to which he has given the name placed above. For his improvements, letters patent were issued in the spring of 1855. It has been been our pleasure to see it at work; and we are pleased to say, that it meets the expectation and excites the admiration of woolen spinners. It strikes the beholder as being a woolen ring-traveler spinning-frame, and such, indeed, it is. The advantages claimed for the "Continuous Spinner" over the jack, are quite numerous and obvious. A spindle in this frame will do twice the work of one in a jack, in the same length of time; and hence a thousand spindles running after this mode of spinning, will do the same work, in a given time, which is done by two thousand jack spindles. Then, again, space is economized by this improvement to the amount of fifty per cent.—a very great gain. The spindle revolving on a stationary point needs not the room of the jack spindle, which moves outward from the strand. Another excellence is, that the Continuous Spinner economizes in the account of help, a child ten years of age turning out as much yarn in a specified time as can be turned off from jacks by two men. Add this to a large saving on account of waste, which is eighty per cent. less than on ordinary jacks, and we have the sum of the advantages claimed. Any person inspecting the machine in operation, and having only a moderate acquaintance with woolen spinning as it is performed on jacks, will easily see that the the claims set forth in the foregoing statement are not exaggerated. Mr. Daniel Painter, of Worcester, Mass., Mr. Geo. Kellogg, Jr., of Rockville, Ct., and Mr. Carlton Grant, of the latter place, give the spinner their positive recommendation. It seems well adapted to fulfil its promise, and make woolen spinning more simple and economical. One frame spinner of one hundred and twenty-eight spindles has been in operation some two successive years, and it may now be seen at the Florence Mill, in Rockville. Manufacturers of wool, who have occasion to use yarn, should give it an inspection. Particulars may be learned from the patentee, H. E. Bigelow, Esq., of Rockville, Ct.

India Rubber Lining of Ships.—Mr. J. P. Corbett of New-York, has patented a plan of lining vessels with a continuous coating of India Rubber, as a safeguard against leekage. The space between the frame and the lining is filled with the rubber.

MINNIÉ AND SHARP'S RIFLES.

An account is given in *The Traveller*, of the rifle manufactory of Messrs. Robbins, Lawrence & Co., of Windsor, Vt. It is situated in Hartford, Ct. We have seen the workmanship of this company, and have long known their great reputation as manufacturers of fire-arms, and we are sure that they stand, deservedly, among the best artists in their kinds of work, therein described, in this country. The following is the account referred to:

"One mile southwest of the State House, on the banks of Little River, stands the manufactory of Sharpe's rifle, and the Minnié rifle. This establishment is owned by Robbins, Lawrence & Co., of Windsor, Vt., where they carry on large works for the manufacture of pistols, rifles, and machinery. The establishment here as there, is admirable for its perfection and system. Those who have a taste for such things, and love to see the triumph of mind over matter, cannot fail of satisfaction in witnessing the march of a rifle from its elements of rude iron and wood to its perfect state—much like the mock development of a rose in the magic lantern, from bud to full blown flower, in a minute. Thus:

"A flat bar of iron, two feet long, and weighing eight pounds, is started at one end of a series of fourteen trip hammers, which strike eight hundred blows a minute. In its progress it is flattened, lengthened, rounded and welded. It then passes through a series of borers, by which the inner surface is smoothed, polished, and the spiral grooves cut. A series of lathes then polishes the outer surface. Other processes prepare the lock and its appendages. The stock, of black wallnut, which comes rough from the forests of Ohio, passes rapidly through its own metamorphosis by appropriate machinery. That for cutting the putch-box and the inlets for the lock is wonderful. It consists of a frame having a lateral motion, in which is inserted a series of drills moving perpendicularly, each in its turn, as the frame moves laterally. What would require a man with hands and many tools an hour, or more likely two hours, to accomplish, is here done in two minutes. What I have described, relates, as to the barrel, to the Minnié rifle.

"Sharpe's rifle is a lighter arm for horsemen and sportsmen, neater, shorter, and more perfect. The barrel, instead of wrought iron, is made of cast steel, and the calibre is bored from a solid cylinder. This arm has received the approbation of the government over all others of the species. The excellence consists, not only in the perfect adaptation for load at the breech, but in the apparatus for priming. A cylinder two inches long, and as large as a pipe stem, contains fifty flattened caps, resembling spangles on a lady's fan. This cylinder, inserted perpendicularly on the top of the breech, rests on a spiral spring pressing upwards. After each discharge, and at the recocking of the gun, a delicate slider removes a cap from its cylindrical pipe, and fixes it on the vent, ready for another discharge. The ball is solid and conical, attached to the cartridge by a string. The cartridge and ball are two inches in length. The operator provided with cartridges at his side and rounding at the breech, if he is practised, can discharge the piece eighteen times a minute. The ball of the Minnié rifle is hollow, that it may the better expand into the grooves, and form a slug.

"This company are making large quantities of arms, which indirectly find their way to the British government and into their army. They also make much machinery for British manufacturers. I understand that many machines used in this establishment are as yet hardly introduced into Great

Britain. These works, though standing on a stream, are moved principally by steam. One engine is of sixty-horse power, and another of forty-horse power. It is interesting to see how in this region steam is taking the place of water power, as railroads have of canals. At New-Britain, a sluggish stream first started their manufactures, but now is almost entirely unused."

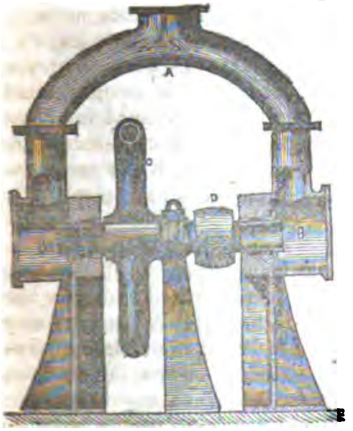
PRINTING IN COLORS.

Printing in colors is an art which has been carried to great perfection by several processes, and several machines have been lately devised for cheapening and expediting the work. Mr. Samuel Brown, of Syracuse, N. Y., patented a press, the practical operation of which is little known beyond its immediate locality, but which is capable of printing four colors at one impression, and will throw off about 500 impressions per hour. The press is on the "platten," or "flat impression" principle, and in general appearance it somewhat resembles the Adams press. Each colored ink is distributed on a separate roller, and all move horizontally across the form at the same time, but at different levels; the blue roller, for example, being beneath the black, and the yellow and red ranging still further below. Those portions of the "form" which are to be of any given color are "locked up" in separate small "chases," and as the bed of the press sinks down after each impression, these chases are stopped by pins projecting from the sides; each at their proper level, to receive the desired color. Only one of these presses is yet in operation; but, although evidently somewhat clumsy, and liable to derangement, the specimens of work done are very creditable, and give promise of very favorable results in the coarser kinds of colored work.

A polychromatic press, far superior to this for every variety of small work, has been patented and set in successful operation by Messrs. A. M. & G. H. Babcock, of Westerly, R. I. In this press the paper is laid on a revolving cylinder, or rather parallelopiped, with four flat faces, and it is firmly held by the usual means. The paper is laid on the upper face, after which a quarter revolution presents a new face to receive paper, and presents the paper already laid to the action of a form which moves horizontally from the side. Another quarter revolution presents this first sheet to the action of another form, rising from beneath, of a different color, and a third movement gives it a third impression. A fourth movement presents it at the top again, when the printed sheet is removed, and another laid on. The three forms, one form on each side, and one form beneath, move up simultaneously against the three faces, whilst the hand of the attendant is occupied in changing the paper on the fourth. The inking rollers, of which, of course, a separate set is provided for each form, perform their duties admirably, moving once backward and forward over the form, whilst the paper cylinder is changing positions. The "register" of this press is perfect, a point of the first importance in color printing, as the slightest misplacement of an impression frequently ruins what would otherwise be a fine effect. The work is performed rapidly and well, yet without violent motions of concussions, and the number of inks employed is three, although, by a trick well known to the craft—allowing some lines to receive two full and perfect impressions, thus superposing one color upon another—six actual varieties may be produced. Patents for the United States have been secured, and measures are taken to secure patents for the British islands.

English Patents.

Hydrostatic Motive Power Engines.—Considerable power is derivable from a Barker's mill, but, from some hitherto unknown cause, as beneficial a result has never been obtained from it as from an equal expenditure of water in other machines. I conceive that this description of engine has thus failed to realize theoretical expectations regarding it, on account of a serious defect in the construction. In an ordinary Barker's mill, the water is admitted to the center of the wheel at one side only; consequently, as the pressure due to the fall of water exerts itself in all directions within the wheel, and the ducts leading to it, it follows that there will be an unbalanced pressure tending to force the wheel away from the duct, and causing immense pressure and friction against the bearings on the opposite side of the wheel to that at which the water enters. When the cause of the defect is explained, the remedy at once suggests itself, and consists in introducing the water to the wheel at both sides. An arrangement for carrying out this improvement, which has lately been patented by me, is represented in the accompanying engraving. Here the water is conducted to the apparatus by a pipe, A, which branches off to two boxes, B. These boxes are on opposite sides of the wheel, C, which revolves in a vertical plane. The shaft of the wheel is hollow from end to end, and its opposite ends are entered through stuffing-boxes into the boxes, B, and the water enters into the body of the wheel in equal quantities from each side, so that there is no lateral pressure whatever on the bearings, and the wheel is enabled to give off its full power, which is communicated to the machinery to be driven by means of the pulley, D. The wheel, C, here represented is of the simplest kind, being composed of two hollow curved arms, from the ends of which the water is ejected, causing the wheel to revolve. The improvement is, however, obviously applicable to various descriptions of turbines and other hydrostatic motive power engines.



Dulwich, February, 1855. C. Tetley.

Steam-Engines and Governors.

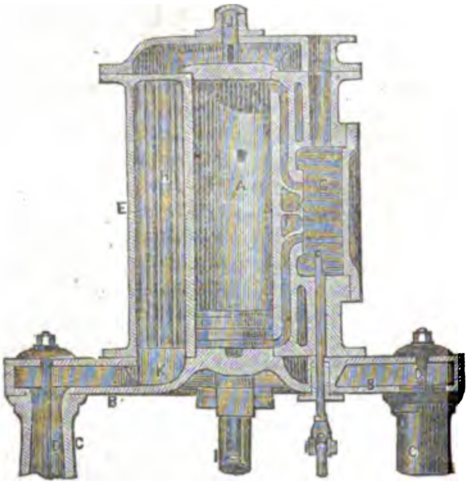
J. W. Hackworth, *Darlington.—Patent dated September* 9, 1854.

This patent comprehends various modifications of the general details of steam-engines, as more especially intended for stationary and marine purposes, with the view of securing proper efficiency of working action.

One detail of these improvements relates to a "Duplex Over-end Crank," to be used instead of the ordinary crank arrangements of steam-engines. This double crank is made by keying or forging on, the end of the main shaft, a plain crank arm of the usual kind. The opposite end of this crank is formed with an eye to receive a stout crank-pin (answering as the working pin for one steam-cylinder,) which is forged in one piece with a second arm, or lighter crank lever. The other end of this secondary arm has forged upon it a second crank-pin for the other steam-cylinder. The stouter pin of the secondary crank arm is fixed into the eye of the first crank, so as to set the two arms at a considerable angle with each other, or at a right angle, as may be desired. The slide-valve for each steam-cylinder of a pair of engines may be worked from a spanner, keyed on the end of the secondary crank-pin; the other end of this spanner being directed back as far as the center of the shaft, whilst it terminates in a solid pin set true with the axial line of the main shaft, upon which two eccentrics, two eccentrically disposed pins may be used.

The steam-cylinders for actuating this "Duplex Over-end Crank" are disposed, one on each side of the main shaft, opposite to each other, and nearly in the same straight line. The axial lines of the two cylinders must vary sufficiently in the plane of the shaft, to allow for the thickness of the second crank, in addition to one-half of each crank journal. But by cranking the second crank lever, the distance may be diminished.

Fig. 1.



Another portion of the improvements relate to a system of economizing steam power, by means of an arrangement which is represented in vertical section in fig. 1 of our engravings. Here an inverted steam-cylinder A, supposed to be placed vertically above the shaft which it drives, is supported upon a hollow cast-iron platform, or table, B, the central portion of which is shaped to answer as the bottom cover of the cylinder with the piston-rod stuffing-box cast upon it. The table, B, is carried by four hollow cast-iron pillars, C, being held down by long bolts, D, passing to the base frame below. The steam-cylinder, A, is cast in one piece with, or it may be otherwise attached to, an outer cylinder, E, arranged to enclose an annular space round the cylinder, A. The exhaust port or ports, F, in the valve casing G, communicate with this annular space, into which the exhaust steam from the steam-cylinder consequently enters. A number of tubes, H, are passed vertically through the space between the two cylinders; and they communicate with spaces above and below the cylinders, and through these tubes the feed-water is made to pass on its way to the boiler, being pumped up from below by the pipes at I, and passing off above by the pipe, J. It follows from this arrangement, that the exhaust steam surrounding the steam-cylinder, A, will prevent loss by radiation of heat therefrom, and will, at the same time, communicate a portion of its heat to the feed-water rising through the tubes, H. The exhaust steam, and any condensed portion of it, finally passes off by the bottom port, K, which communicates with the interior of the hollow table B, and with the hollow pillars, C, being thus spread over a large extent of metallic condensing surface, and finally, finding its way to a cistern below. The arrangement just described is obviously most suitable for a vertical steam-cylinder; but the apparatus may also be adapted to steam-cylinders arranged in other positions. Thus, with horizontal steam-cylinders, the tubes, H, may be bent round across the steam-cylinder, but it is preferred in all cases to have these tubes as nearly vertical as possible.

The patent also covers a new form of governor, which is represented in vertical section in figs. 2 and 3, and consists of a three-branched vessel or pipe, A, carried upon a vertical spindle, B, supported and driven in the manner usually employed with ordinary ball or pendulum governors. One, C, of the three branches of the vessel, A, rises up centrally and vertically, whilst the two other branches, D, run out, upwards and laterally, on opposite sides. The central branch, C, is bored out cylindrically, and inside it works a plunger, or heavy float, E. A rod, F, passes up from the float, E, through a hole in the cover of the pipe, C, and is joined to the lever, G, which transmits the regulating action of the governor to the throttle valve, H. A quantity of mercury, I, or other suitable fluid, is placed in the vessel, A, which mercury fills the three branches to the same level when the governor is at rest. On the governor being caused to revolve, however, the centrifugal action causes the mercury to run up the lateral branches, D, and to sink to a lower level in the central branch, C. If the governor is driven beyond the proper rate, the mercury will sink so low in the central branch, C, as to allow the float, E, to descend, which movement will act on the throttle-valve connections in such a manner as to partially close the valve, and diminish the supply of steam to the engine. Contrariwise, when the governor revolves at too low a rate, the mercury will sink in the lateral branches, D, and rise correspondingly the central branch, C, lifting the float, E, and thereby causing the throttle-valve

FIG. 2.

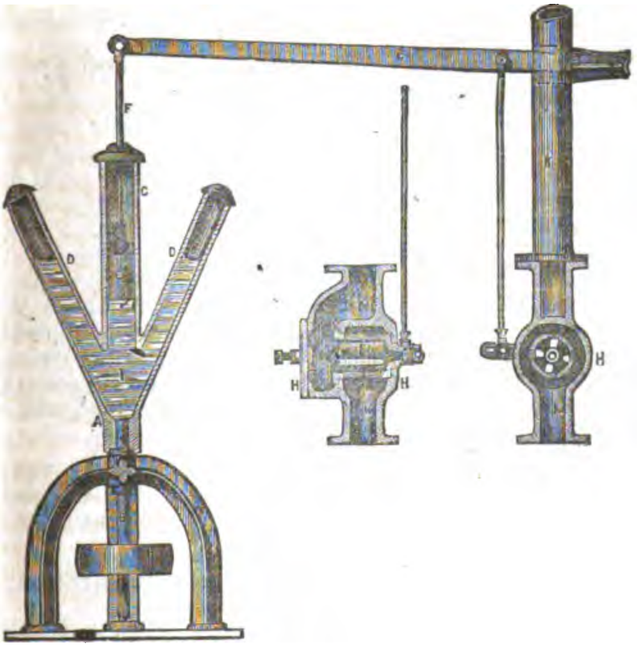


FIG. 3.

to open further, and give an increased supply of steam to the engine, to enable it to recover its rate. The throttle-valve, H, represented as in connection with the improved governor, is also constructed according to one portion of the invention. The valve seating consists of a cylinder, J, fitted into the steam-pipe, K, in such a manner that one end of the pipe communicates with one or both ends of the cylindrical seating, whilst the other end communicates with the circumference of the seating, the stream having to pass through the cylindrical valve seating on its way to the cylinder, this passage being effected through slots in the seating. The spindle, L, of the valve passes through the axis of the seating, and carries a number of radial feathers corresponding to the slots in the valve seating, J, and turning on their circumferental edges to work upon the turned inside surface of the valve seating. The valve is thus balanced as regards the steam pressure, which can in no position have any tendency to shut or open it, or prevent its being shut or opened, by the least possible force applied to its lever.

In addition to the above, Mr. Hackworth also describes two arrangements of reversing gear for mining and similiar engines.

MISCELLANEOUS.

Saleratus.—The *Medical Examiner* reviews at some length the statement of Dr. Alcott respecting the poisonous effects of saleratus used in food, and after carefully examining the statements, closes by saying—what is perfectly correct, in our judgment—that "there can be but little doubt that the dangerous properties attributed to saleratus by some persons, exist entirely in their imaginations."

Patents Granted.—In 1841, there were 847 applications, 312 caveats, and 495 patents were issued. In 1847 there were 1531 applicants, 533 caveats, and 572 patents issued. In 1852, 2,639 applicants, 996 caveats, 1,020 patents issued.

Ship-building.—The number of vessels built in the United States, in certain years, is given in the census returns, as follows:

1815, 136 ships, 224 brigs, 680 schooners, 274 sloops and canal boats. Total 1,314; tons, 154,624.

1829, 44 ships, 68 brigs, 480 schooners, 145 sloops and canal boats, 43 steamers. Total 785; tons 77,098.

1852, 255 ships, 79 brigs, 584 schooners, 267 sloops and canal boats, 259 steamers. Total 1,444; tons 351,493.

Steam Tonnage of United States.—The steam marine of the United States by the report of the Secretary of the Treasury in 1852, consisted of ocean steamers 96, ordinary 382, propellers 67, ferry-boats 80. Total 625, tonnage 212,500. The inland steam marine consists of 767 steamers, of 274,723 tonnage.

J. B. Wickersham is at his old stand, 312 Broadway, and is agent of the New-York Wire Railing Works. He has a fine book of specimens of capitals, fences, fire-frames, chimney-pieces, girders, gratings, bedsteads, etc. The volume will be forwarded to any order, enclosing a shilling or four postage stamps.

NEW DESCRIPTION OF SILVER.—A French *savant*, M. Sainte Clair Deville, has succeeded in obtaining from the aluminum in common clay a metal which rivals silver in beauty, and surpasses it in durability, not to mention other qualities. It can also be produced in masses sufficient and cheap enough to replace copper, and even iron in many respects, the cost of extracting it, owing to recent discoveries, being only about forty cents the pound. The new metal is wonderfully light. Among the many remarkable qualities of aluminum, such as its resistance to oxydation, either in the air or by acids, its hardness, its wonderful lightness, its malleableness, the facility of moulding it, etc., we are told of another, its sonority. An ingot was suspended by a string, and being lightly struck emitted the finest tones, such as are obtained only by a combination of the best metals.

COTTON MANUFACTURE IN THE SOUTH.—An able writer, in a Northern periodical, has taken up this subject, and shows very conclusively that the Southern States ought to become the manufacturers, as well as producers, of cotton for the world. From facts furnished by this writer, it appears that the cotton manufacture makes up nearly one-half of the external trade of the British Kingdom. The United States furnish four-fifths of the six millions of pounds imported into Great Britain. The writer proves, by statistics and figures, that the British manufacturer receives five times as much for converting the cotton into cloth, as the farmer for producing the raw material, and both employ the same amount of capital. It appears that the same disproportion exists between the profits of the Southern planter and the Northern manufacturer. The writer then sets forth the great advantage possessed by the Southern planter for manufacturing, and shows that the mere saving in the transportation would go largely to the payment of the manufacture. He urges that instead of increasing the product, already too great, the true Southern policy is to enter largely into the manufacture, and thus withdraw a portion of the labor engaged in the production, and employ it in the more profitable mode of manufactures.—*Mobile Advertiser.*

NEW BOOKS.

A PRACTICAL GRAMMAR, ETC. By S. M. CLARK, A.M., Principal of Cortland Academy. New-York: A. S. Barnes & Co. 1855.

ANOTHER stone in the "foundation" of the English language. It is "analytic" in its character, beginning with letters, and going on to the most complicate sentences. Diagrams have been introduced for illustrating the subjects, the value of which, says the author, has been tested by experience, being of as much value here as in Mathematics, since by it the mind is relieved, and receives valuable aid from the eye. This new candidate for popular favor will, no doubt, receive its share of attention.

THE NEW-YORK MUSICAL REVIEW AND GAZETTE. Mason & Brothers, New-York.

WE have long intended to commend this capital Weekly sheet to all our musical friends who like to be posted up on American and foreign musical affairs. Every number pays well for the reading, and if we ever differ from the Editor, it only shows that "editors disagree" in music as well as elsewhere. We say emphatically, this journal is well worth the respectful attention of the public.

NEW MUSIC.

PIANOS FOR PUBLIC SCHOOLS.

WE learn from the Buffalo *Courier* that the citizens of School District No. 14, by their committee, after examining various Pianos with reference to durability, finish, tone and comparative excellence, have selected one of Messrs. Boardman & Gray's Pianos, with the corrugated sounding-board, for their school.

This is an example that should be imitated by other schools. Let Music and cheerfulness take the place of the rod and arbitrary law in schools, and we have taken a long step in the way of human progress that will not need to be retraced.

And as to Pianos, those made by Messrs. B. & G. certainly stand A No. 1 in the list. They are made to last and improve rather than grow dull with age. They have several points of excellence (secured by letters patent) which others have not, and are pronounced by many of our best Pianists to have no equals in any country.

WE have received from the House of S. T. Gordon, 297 Broadway, where lovers of good music can be supplied with whatever is fresh or desirable in that line, as also with Pianos, Melodeons, and Organs, from the best manufacturers, a choice selection of music, consisting of Polkas, Schottisches, Ballads, comic, sentimental and moral. Among which are—"My Mother's Grave," by W. G. Wetmore, M.D ; "The Early Flower," by W. H. Hartwell ; "Spare the Old Homestead," by J. P. Webster ; "The Poultry and The Baby-Show Polkas ;" "Have you seen Sam," etc., etc.

List of Patents Issued

FROM JULY 10, 1855, TO AUGUST 3, 1855.

John Aspinwall, London, for improvement in apparatus for draining sugar.

Charles Atwood, Birmingham, Conn., improvement in ventilating railroad cars.

Jonathan F. Barrett, North Granville, N. Y., for improved method of raising and lowering the cutters of harvesters.

Thomas Barrows, Dedham, improvement in process for treating wool.

Wm. Blackburn, Jersey City, N. J., for automatic machine for turning ship spars, etc.

Francis B. Blanchard, Waterville, Me., for improvement in air and steam engine.

Samuel W. Brown, Lowell, for improvement in gas regulators.

Eleazar Brown, Jr., for improvement in lubricating compounds.

S. N. Campbell, Elgin, Ill., for improved sunshade.

Daniel Campbell, Washington, D. C., for improvement in saddle trees.

James E. Cronk, Poughkeepsie, for device to allow the escape of waste water from pump barrels.

Lyman Clinton, North Haven, Conn., for improvement in straw cutters.

Daniel Deshon, 2d, Whitestown, for improvement in spark arresters.

Rufus M. Dill, of Holyoke, for improvement in looms.

Sheldon S. Hartshorn, of Orange, Conn., for improvement in buckets.

John J. Heard, Boston, for ship pump.

Enoch Jackman and Edwin G. Dunham, Portland, for improvement in fastenings for carpets.

Benjamin F. Joslyn, Worcester, improvement in slide wrenches.

Wright Lancaster, of Harmony Township, Ind., for improvement in washing machines.

James Murphy, New-York, improvement in steam boilers.

Jno O'Niel, Kingston, N. Y., for improvement in machine for pulverising clay.

Orson Parkhurst and Daniel Bullock, Cohoes, for machine for cutting screws on bedsteads.

Isaac J. Hite, White Post, Va., Assignor to W. F. Pagett, of same place for improvement in harvesters.

F. A. Parker, Shaftsbury, Vt., for improvement in saw-sets.

Adonijah and Simeon Peacock, Cincinnati, for improvement in attaching cast points to steel mould-boards of plows.

Samuel Pearson and Wm. H. Gardner, of Roxbury, for improvement in rope and cordage machines.

William Robinson, Augusta, Ga., for stave machine.

Stephen Saunders, South Kingston, R. I., for vibrating stop water for ships and other vessels.

Frederick Scheurer, N. Y., for improvement in counter scales.

Jos. Smart, Philadelphia, for self-regulating water packing for pumps, etc.

Samuel W. Soule, Oswego, for improvement in excavators.

Sophia B. Spafford, administratrix, and George Alexander, administrator of Simeon L. Spafford, deceased, (late of Philadelphia,) for improvement in railroad draw-bridge signals.

Andrew Stoeckel, N. Y., for machine for cutting legs for pianos, tables, etc.

Chas. M. Swany, Richmond. Ind., for guage of stair rails.

Charles F. Thomas, Taunton, for improvement in the means of increasing draft in locomotives.

Stephen Ustic, Philadelphia, for improvement in brick presses.

Orrin D. Vosmus, Mt. Sterling, Ky., for improvement in open stirrups.

Wm. E. Ward, Port Chester, for improvement in machines for making bolts.

Jerome B. Woodruff, Washington, D. C., for improvement in sewing machines.

John C. Young, Middletown, Md., for machine for boring posts and pointing rails.

John Edgar, Baltimore, Md, for self-regulating wind-mills.

Wm. P. Walter, Philadelphia, for improvement in manufacturing plate glass from cylinders.

Abner Whitely, of Clark county, Ohio, for improvement in grain and grass harvesters.

John Philips, of Waynesborough, Pa., assignee to Benjamin Brantz, of the same place, for self-regulating wind-mill.

"The Delaware Air-Spring Manufacturing Company," assignee of James F. Heyward of Wilmington, Del., for improvement in pneumatic springs. Patented in England, Jan. 26, 1855.

Chas. F. Brown, Warren, R. I., improved mode of mounting ordenance.

C. H. Butterfield, South Lancaster, Mass, improvement in lanterns.

Washington H. Bixler, Easton, Pa., improvement in nut machines.

Benj. Eastman, Philadelphia, improvement in invalid bedsteads.

Jacob Edson, Boston, improved method of operating valve of pumps.

Edwin Ellis, Ansonia, Conn., improvement in machines for forming metal tubes.

John Frazer, New-York, assignor to Logan' Vail & Co., of same place. improvement in adjustable rises.

William Gourley, Clarke county, Va., improvement in harrows.

John K. and William P. Gamble, Philadelphia, improvement in safety railroad draw-bridges.

Francis Blake, Needham, Mass., improved rosin oil lamps.

Joseph C. Gartly and Jacob Fox, Philadelphia, fan-blower.

L. A. Gibbs, Wash'n, D. C., expanding auger or bit.

John B. Holmes, New-York, assignor to A. R. Pratt, same place, improvement in ship's capstans.

J. Carroll House, Lewville, N. Y., alarm bedstead.

Aaron G. Heckrotte, New-York, improvement in railroad car coupling.

Tyler Howe, Cambridgeport, improvement in bedsteads.

Jules Jennotat, Paterson, N. J., improvement in bottle fastenings.

Harold Kelsea, North Branch, N. H., improvement in trealing a single strand and twisting sewing thread.

J. S. Morgan. Highland, Ill., wind-mill.

Edward Mingay, Boston, improvement in dericks.

David Mathew, Philadelphia, improvement in apparatus for heating feed water to locomotive engines.

Jos. A. Peabody, Lowell, machine for morticing window blinds.

S. T. Parmelee, New-Brunswick, N. J., improvement in attaching metallic heels to india rubber soles.

Oliver Palmer, Buffalo, wrecking-pump-rotary.

John Ryan, Wilmington, Del., improvement in railroad car coupling.

Frederick R. Robinson, Worcester, improvement in guides for sewing machines.,

John B. Stott and Alex. Ferguson, Troy, improvement in cross-head attachment for working engine valves.

Matthew Ludwig, Boston, machine for sawing down trees.

Otis Tufts, Boston, improvement in constructing iron ships. English patent dated April 2, 1854.

Wm. C. Worthen, New-York, improvement in metallic blinds for doors and windows.

Willard M. Wheeler, Upton, Mass., waterwheel.

Moses D. Wells, Morgantown, Va., improvement in churns.

Edwin Williams, Covington, Ky., improved excavating machine.

Edwin D. Willard, Washington, D. C., improvement in gas-burning gridirons.

Edward Wood, Philadelphia, improvement in looms.

David Watson, Petersburgh, improvement in harvesters.

Chas. Waters, Brooklyn, improvement in lanterns.

Henry Van De Water, Troy, turbine water wheel.

James Dickinson and Oliver White, Richmond, Ind., self-regulating wind-mill.

John Pepper, Franklin, N. H., assignor to the Franklin Mills of same place, improvement in knitting machines.

Albert Reinhardt, New-York, assignor to Jas. Schlumberger & Co., Guebervillier, France, improvement in machinery for preparing wool for combing.

W. H. Elliot, Plattsburgh, N. Y., improvement in devices for sealing preserve cans.

John A. Reynolds, Elmira, improvement in fire arms.

John A. Reynolds, Elmira, improved apparatus for cocking repeating fire-arms.

Cephas Appleton, Lyndon, Vt., Machine for cutting sheet metal.

John and Evan Archer, New-Brunswick, N. J., for cutting boot and shoe uppers, soles, etc., from sheets of india rubber.

Archibald Bailey, Blue Rock, O., whippletree.

William Ball, Chickopee, Mass., feeding water steam boilers by auxiliary engines.

G. Thompson, E. Tarentum, Pa., mode of e paring potash and soda.

Pierpont Seymour, E. Bloomfield, N. Y., seed planter.

A. E. Smith, Bronxville, N. Y., washers for axles.

C. A. Wilson, Newport, Ky., oscillating valves and gearing for pumping engines.

Wm. Mootry, New-York, refrigerators.

Jesse Urmy, Wilmington, Del., grain and grass harvesters.

Augustus Seaborn, assignor to E. T. Fairbanks & Co., St. Johnsbury, Vt., union platform scales.

S. T. Jones, New-York, furnace for treating zinc ore.

Andrew Campbell, Newark, N. J., feeding paper to printing presses.

Willis Humiston, Troy, N. Y., candle mould apparatus.

Merwin Davis, New-York, printing press.

Augustin Duboce, Brooklyn, N. Y., propellers.

John A. Burnap, Albany, N. Y., double reciprocating split piston rods for pumps, etc.

Frank Chase, So. Sutton, N. H., window blinds.

Matthew F. Connet, Plainfield, N. J., turning cylinders of wood.

J. T. Russell, Tyler county, Va., wagons.

T. E. Sandgren. Wilmington, Del., hydrodynamic friction joints.

G. R. Comstock, Manheim, N. Y., cheese presses.

John Allender, New-London, Ct., bottle fastenings.

James Montgomery, Baltimore, Md., wrought iron shafts,

Henry Colgate, Jersey City, N. J., starch making.

John Williams, Hartford, Ct., calendar clocks.

Albert Walcott, Detroit, Mich., dressing lumber from the log.

E. A. Swan, Brooklyn, N. Y., and De Witt C. Smiley, New-York, dressing and carving stone.

F. O. Degener, New-York, paging machine.

W. H. Elliott, Plattsburgh, N. Y., exhausting and sealing vessels.

Phineas Emmons, N. Y., sizing hat bodies.

Benj. Fulgham, Richmond, Ind., sawing machines.

Kington Goddard, Philadelphia, Pa., bridle reins.

C. H. Guard, Brownsville, N. Y., boring and mortising hubs.

Joseph Harris and Elbridge Harris, Boston, Mass., hand stamp.

John Harris, N. Hoosick, N. Y., machinery for making rope.

Horace Hotchkiss, Waterbury, Ct., cutting files.

M. G. Hubbard, New-York, improvement in carriages.

John Jerries, Bethany, N. Y., stalls for horses.

James Kelren, Canton, Mass., assigner to himself and George Banks of E. Boston, Mass., making railway chairs.

Francis Kenney, Springfield, Mass., parlor stoves.

E. B. Larcher, Baltimore, Md., making gutta percha boots.

Saml. Macferran, Philadelphia, Pa., processes for smelting iron.

D. M. Mesier, Boston, Mass., processes for hulling cotton seed.

Jonas Moore and D. P. Adams, Marietta, Ohio, administering pulverulent medicines.

E. N. Moore, Lenox, Pa., and J. B. Hanyan, Chester, N. Y., balance water gate.

H. R. Worthington, Brooklyn, N. Y., water metre.

Joseph Plegar, Birmingham, Pa , hinges.

H. T Robbins, Lowell, Mass., shuttle guides for rooms.

John H. Atwater, of Kalamazoo, for improvement in washing machines.

Nelson Barlow, of Newark, for improved method of feeding planks to planing machines.

Simon Barnhart, of Chillicothe, for fan blower.

Oliver D. Barrett, of Fulton, N. Y., for improvement in washing machines.

John Ericsson, of New-York, for improvement in air engines.

John A. Elder, of Westbrook, Me., and John Richardson, of Portland, Me., for improved machines for ruling and paging paper.

John A. Elder, of Westbrook, Me., and Ephraim Wood, of Winthrop, Me., for improvement in machinery for seizing and dressing warps.

Fred'k Field, of Toledo, for cross-cut sawing machine.

Jas. Harrison, Jr., of Milwaukee, for improvement in sewing machines,

Liveras Hull, of Charlestown, Mass, for machine for sawing rattan.

Solon S. Jackman, of Lock Haven, Pa., for improvement in machines for compressing puddler's balls and other masses of iron.

Joseph Johnson, of Washington, D. C., for improvement in washing machines.

Fielding H. Keeney, of Newport, Ky., for circular saw mandrel.

Stephen Meredith, of Meadsville, Pa., improvement in distilling coal with hydrogen gas.

Fred'k Perry, of Newark, for improvement in cut-off valves for steam engines.

Wm. H. Rhodes. M. D., of Berlin, N. Y., for improvement in artificial legs

Wm. Selters, New-York, for improvement in ventilating hats.

Isaac M. Singer, New-York, for improvement in sewing machines.

Paul Stillman, New-York, for improvement in water guages for steam boilers.

Elam C. Shaftsbury, of New-York, for improvement in excluding dust from railway cars.

Geo. S. Shepard, of Canaan, N. Y., for improvement in musical road instruments.

C. C. Taylor, of Delafield, Wis., for improvement in bucket for water-wheel.

Anton Von Hagen, of Cincinnati, for improvement in soap cutting machines.

Norman W. Wheeler, of Cincinnatti, for improved method of operating steam valves. Antedated March 1, 1855.

Henry R. Worthington, of Brooklyn, for improvement in direct acting hydraulic steam pumps.

Wm. G. Wolf, of Philadelphia, for improvement in writing desks.

Sam'l M. Yost, of Connersville, Ind., for improvement in washing machines.

Lucien N. Bigelow, of Cuba, N. Y., for improvement in seeding machines.

Sam'l A. Briggs, of Providence, for improvement in hot-air furnaces.

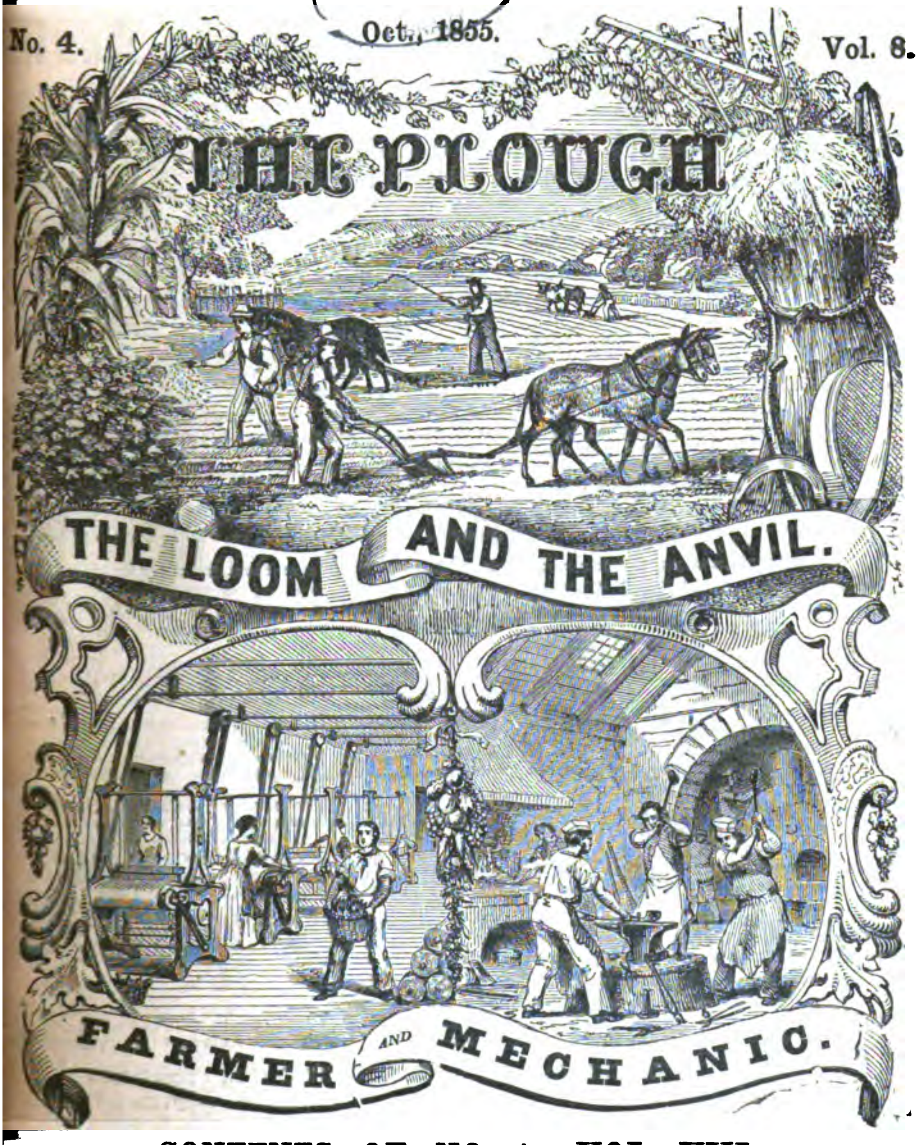
John P. Hayes, of Philadelphia, for improvemen in ovens.

DESIGN.

Nathaniel P. Richardson, of Portland, for design for Franklin fire-places.

HARVARD COLLEGE
Sci 120.105

No. 4. Oct., 1855. Vol. 8.



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HURD'S HAIR RESTORER,

FOR PRODUCING HAIR ON

BALD HEADS.

This Preparation has never failed to produce a new growth of Hair on Bald Heads, when used according to directions. It is designed expressly for the purpose, whereas, nearly, if not all the various preparations advertised for that purpose are, in reality, designed merely for the toilet, and are composed of oils, alcohol, &c., injurious rather than beneficial to the scalp.

POQUETANNOCK, Conn., Feb. 9, 1855.

"This is to certify that I have been using Hurd's Hair Restorer about three months, and now, where my head was bald, it is covered with a new growth of hair." Capt. GEO. G. BENJAMINS.

POQUETANNOCK, Conn., Feb. 14, 1855.

"This is to certify that I have been using Hurd's Hair Restorer about three months, and where my head was entirely bald, and had been about twenty years, it is covered with a new growth of hair, at least three inches in length." ALICE ADAMS.

The *Petersburgh (Va.) Intelligencer* says of HURD'S HAIR RESTORER: "This preparation seems to be efficacious for the restoration of the hair upon bald heads. We have seen the testimony of persons well known to us, who have used the compound successfully, thereby corroborating the opinion of its restorative energy."

For a Superior Article for the Toilet use HURD'S GOLDEN GLOSS.

This preparation is highly perfumed, and gives to the hair a dark, soft, glossy, and lively appearance, which can not be obtained from any other article. It effectually cleanses the scalp, and keeps the head clean and healthy.

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ALFRED MUNROE

House in New-Orleans, No. 34 Ma rect.

The Plough, the Loom, and the Anvil.

Vol. VIII. OCTOBER, 1855. No. 4.

THE CONDITION OF LABOR—TRUE PROSPERITY.

We think the time has come for the mass of the people to review the past and examine their present condition, and to know whether they are receiving and have received that return for their labor to which they are entitled. It may be found that the language of that true poet, Hood, applied to a single form and department of labor, is applicable, in a degree, to a much larger proportion of the people than has been generally supposed.

> "O men with sisters dear,
> O men with mothers and wives!
> It is not linen you are wearing out,
> But human creatures' lives!
> Stitch! stitch! stitch!
> In poverty, hunger and dirt,
> Sewing at once, with a double thread,
> A shroud as well as a shirt.
>
> * * * * *
>
> O God! that bread should be so dear,
> And flesh and blood so cheap!
>
> Work! work! work!
> My labor never flags;
> And what are its wages?—a bed of straw,
> A crust of bread and rags—
> That shattered roof, and this naked floor—
> A table, a broken chair—
> And a wall so blank—my shadow I thank
> For sometimes falling there!"

Intelligent industry ought to thrive, and in every department of useful labor a livelihood ought always to be secure to the industrious worker. He should not be borne down into the dust, either by fraud or by force. That law of trade, belonging to a code now quite current, "buy cheap," ought not to override all justice and all mercy, and make paupers or beggars of those by whose labor the rich become richer, and the strong stronger. Nor is it enough to show, in justification of such a grinding process, that it is necessary to enable the employer to compete successfully with some other, who lives on fraud, and whose prosperity grows out of the destruction of his neighbors, as really as the tree of the forest thrives on the decomposition of the dead animal at its root.

If any one thing can show the general prosperity and well-being of a community, we think it is the fact that all useful labor is remunerative. This does not require that every form of labor should receive a large sum in wages, but it does require that the amount received should enable the laborer to provide well for himself. He expends his energies, his only capital, for the good of his employer. He is not fully compensated unless he receives at least what will restore to him what he has expended. In any condition of things short of this, he is reducing his capital, and in the code commercial, this is the unpardonable sin. Nor does the laborer receive this full remuneration when he merely gets wages that will buy all he wants to eat, drink, and wear. That laborer is a man. Progress is as much a part of his creed as it is that of the scholar, though the progress desired is different in kind and in degree. This must be his creed *because* he is a man, and no man is in the best condition to do well for himself or for others who does not see something before him, and within his reach, better than the present. He knows that there will be "rainy days." He knows that sickness may lay him low and hold him helpless. He has loved ones, too, whom he cherishes as his own eyes, to whom he would do good. He is not then satisfied, although when night comes he finds that his food for the day has been paid for, and a shilling is left for his lodging.

We may take another view of this doctrine, which may set it in a clear light. A young man commencing for himself says, "Here I am, about to begin a series of labors, which shall, perhaps, continue for many years, but, at last, it will give me a comfortable home for myself and mine in our old age. Thirty years even may be past ere I accomplish this; but yet so much a year laid up will secure this result." But he labors ten years without gaining anything, and now only twenty remain. Hence the annual saving must thereafter be greater than he first proposed, or his prospects will be materially lessened, and his hopes disappointed. He is not now in so good a condition as he was when he commenced for himself. His circumstances have constantly been growing worse and worse. He is not ready to surrender the one aim of his life. He has not thought of despair. But he sings, in the words of the same poet:

> "No parish money or loaf,
> No pauper badges for me,
> A son of the soil, by right of toil,
> Entitled to my fee.
> No alms I ask; give me my task—
> Here are the arm and leg,
> The strength, the sinews of a man,
> To work, and not to beg."

Without spending further time or space in this direction, we repeat that it is a full remuneration for all his expenditures that he may rightfully claim, and in this calculation, be it more or less, within reasonable limits, this desire for progress or an improved condition comes in as a legitimate item; and, if disappointed in this, the laborer is so far deteriorated, positively incapacitated. It would be impossible to lay down any particular rule for measuring or limiting the amount of this obligation. But, whatever it may be, it is a legitimate item in fixing the price of a day's work. The interest of the employer demands it as really as the interest of the employed.

Whatever standard may be adopted as a just *measure* of recompense for services rendered, no difference of opinion can exist on the absolute proposition, that the laborer is worthy of a full remuneration for whatever is actually expended for his employer; and no community can be said to be prosperous where labor does not thus receive its full reward.

A great deal of confusion exists in the minds of thousands upon the real question at issue on this subject. If a certain number of the community grow rich, if the wealth or power of certain sects or cliques, or particular interests, increase, the idea prevails that the community is necessarily prosperous. Nothing can be more erroneous. Suppose a house consists of ten partners, each having his distinct branch of trade, and that five of these lose as much as the other five gain. Is that house prosperous? No man thinks so. Then why should we not judge the same of a community?

We can well understand why, in past times, such a mistake should be made. There have been times when the interests of the masses were not regarded. The lords of the manor, the barons, and a few other titled men, constituted the nation. No man was in any sense a citizen who was not the owner of real estate. "The right of peerage was originally territorial," says Blackstone, "that is, annexed to lands, honors, castles, manors, and the like, the proprietors and possessors of which were allowed to be peers of the realm. When the land was alienated the dignity passed with it as an appendant." Even in the early history of this country similar views were held. It is within the recollection of many, not among our "oldest inhabitants," when the ownership of real estate was necessary to constitute a voter. Nor is it longer ago than the famous Dorr rebellion in Rhode Island that this was one of the doctrines which became a matter of contention even at the point of the bayonet. The views generally entertained on this subject even now partake very extensively of the coloring of those past epochs.

When any such limitation of the right of citizenship is established, it may, *perhaps*, be true, that the welfare of the masses is not involved in the welfare of the community. But even then we do not see that the state of things would be essentially changed in this respect. The general may be regarded as the only person of consequence among all those who are about him. But if his army are weak from starvation, where will he obtain his laurels? So the master may appropriate to himself all the dignities and emoluments, and even ignore the existences which minister to him, but if they are diseased and disabled what becomes of him? It is quite too late in the day to urge any such considerations as these to which we have referred upon the public mind. The community is made up of ALL its parts, whether they are held in honor or in dishonor, whether allowed more or less of civil and social privilege, and that community does not prosper where the masses are not in good condition—well educated for the duties required of them—happy and contended.

But we must not extend these remarks. We appreciate the importance of every block in the structure of society whether below or above the surface, and are quite ready fairly to investigate the question, Is our community in a prosperous condition? When compared with many others it undoubtedly is prosperous. But when compared with our own ideas of what we should be and may be, when we compare our practice with our theory, we must pause ere we answer either way, yes or no.

What are the facts connected with this inquiry? Vast estates are made, and made rapidly. We can point to those who have accumulated a million in less than thirty years. But did they *make* it, or steal it? Was it the result of honorable, legitimate traffic, or was it the product only of trickery, deceit, fraud, falsehood? Was it drawn out from the hard and honest earnings of others, who were deluded by the false tales that were told them? If this is the process, would any amount of wealth thus acquired by the few make a prosperous community, or furnish any evidence of its good condition? This, no doubt, does describe truthfully the process by which many great estates have been rapidly acquired. Our cities abound in them, and they are met with all over the country.

Other large estates are rapidly accumulated by foreign trade. Among the ignorant natives of China and the Indies, the "shrewd" Caucasian sends his commercial agent, and, partly by cheating in weights and measures, partly by deceits of other sorts, the rich products of those countries are obtained for a song, and the house rapidly becomes rich. It employs twenty or fifty men in our own midst, to handle, sell, and manage these rich cargoes, and a great noise is made about "commercial enterprise," and the progress of our country, and the very science of Permutation is exhausted in conjuring up numerous forms of trumpeting this "progress" over the continent, and even across the ocean. But is it not obvious that all this is humbug and fraud? What has it done for the general prosperity of the community? Perhaps this same great house beat down the ship-builder that furnished the ships which brought over these rich cargoes to almost the cost of the timber, so that he had no resource but to do the same thing with the carpenter, and blacksmith, and lumberer, while the rigger, and sailor, and stevidore, and porter, as well as the clerks, bookkeepers, and salesmen can find employment in that house only at the lowest possible wages. Is there here any evidence of a prosperous community?

But let us take a tour into the country. Rich land extends all through our valleys, and our hills wave with rich harvests, herds and flocks abound, and the farms, barns, and granaries are running over. "Surely here is prosperity," we are told, and we admit that no class in the world is so independent of the fluctuations which abound in all communities as this. But why are his barns so full and his granaries so loaded? Because he can find no remunerative market. Because such a system of speculation pervades all the places of business, that the producer must sell at almost ruinous rates or keep his products for home consumption. This, often and generally, he cannot do, and therefore he must sell them to the speculator, who, without a particle of labor bestowed upon them, without doing a single thing to improve their condition, has such a control of the retail market, that he demands an exorbitant price for the daily necessaries of life, and, in a few years, builds a splendid house in a fashionable street, and retires from active business to loan his money at two or three per cent. a month, and thus keeps the ball in motion till it is absolutely unwieldy. Is there here any evidence of a prosperous community?

We might thus run through all the forms of trade, and we should come to the same result, nor shall we get any satisfactory answer to the inquiry we have made, till we are so happy as to find all these classes well compensated for their labor, and labor always to be had. The farmer then toils cheerfully, and sings a song of praise each evening with a merry heart. The mechanic sharpens his tools and plies them with an energy that whets his appetite while he enjoys his liberal repast; and a hard day's work, well compensated and a certainty of employment for to-morrow, secures for him sweet sleep in the midst of a happy family. And so this ball rolls on. All are well provided for, all are prosperous and happy. Grim want drives none into vice. The people become honest, and hate every form of crime. Even their selfishness teaches them such lessons, for now they have that which needs the protection of law, and they crave the peace and security which good morals alone can insure.

Is there any such talisman as this among all the regulations of the police, and the penal enactments of legislatures? Surely there is none.

And to what result are we brought as to the answer, Yes or no? Are we, as a community, in a prosperous condition? There has been, by general consent, one of the severest seasons our country has ever known. Its severity consisted in the fact that labor could find no market, and could earn no wages. Many a heart still aches under the bare recollection of its pangs. WHAT PRODUCED THAT STATE OF THINGS? Who will inform us? Who will investigate it? Leave not the inquiry to the politicians, IT IS FOR THE LABORER. Politicians are the most corrupt crew living on this footstool. There is not a band of pickpockets on earth, that can so easily be led to betray the interests of their associates as they. STATESMEN are NOBLEMEN. Men who take office for the good of their country and labor for its good, deserve the highest of rewards. Men who seek office as they would buy goods at an auction, as a source of profit and for personal advantage, and who value it in the exact ratio of its emoluments, belong to a different class, and though some of these are truly honest, and many others as honest as is compatible with security of place, too many of them become politicians by trade, and they do trade in their *policy* just as they would in horses, to the best bidder. Trust not this discussion in such hands. Let the educated, the intelligent laborer, study the relations of trade, the antecedents of "commercial crises," and of stagnation in business.

We have said this is the duty and interest of the laborer. This is a large class. It includes all but idle drones, who are generally too inefficient to exert any influence beyond their own family circles. The laborer, then, has it in his power to adopt such measures as he may think best. Will he take it in hand, and examine it IN THE LIGHT OF FACTS? We will try to do our part. Let every reader give us his assistance.

METEOROLOGY FOR THE FARMERS.

WE give extracts from the interesting letter of Lieut. Maury, of the U. S. Navy, to the Editor of the *American Farmer*, on the subject of Meteorology. It is a matter of great importance to the Agricultural interest of the country; and it is hoped an appropriation from Congress will be made, to carry out the views of Lieut. Maury.—ED.

"OBSERVATORY, WASHINGTON, June 18, 1855.

"*To the Editors of the American Farmer:*

"GENTLEMEN:—I am much obliged to you for your favor of the 9th inst. You are right; I did not intend to confine the appeal to the farmers of any 'pent-up Utica.' I intended to make it as broad as the land.

"You ask for the plan of coöperation. It is very simple, and calls on the farmers for little more than good-will.

"I first want authority to take the preliminary steps, and to confer with other meteorologists and men of science at home and abroad, with the view of establishing a uniform system of meteorological observations for the land, as we have done for the sea.

"If any officer of the Government were authorized to say to the farmers, as I have to the sailors, Here is the form of a meteorological journal; it shows you the observations that are wanted, the hours at which they are to be made; tells what instruments are required, and how they are to be used: take it, furnish the Government with observations, and in return the Government will discuss them, and give you a copy of the results when published—he would have at once, and without cost, a volunteer corps of observers that would furnish him all the data requisite for a complete study of both agricultural and sanitary meteorology.

"Such an offer to the sailors has enlisted a corps of observers for the sea, by whose coöperation results the most important and valuable, and as unexpected as valuable, have been obtained.

"Could not at least one farmer be found on the average for every county in every State that would gladly undertake the observations? I don't think there would be any difficulty on that score. Sailors have been found to do as much for every part of the sea—on the average ten observers for a State would be sufficient.

"Now if we could get the English Government, and the French Government, and the Russian Government, and the other Christian States, both of the Old World and the New, to do the same by their farmers, we shall have the whole surface of our planet covered with meteorological observers, acting in concert, and eliciting from nature, under all varieties of climate and circumstances, answer to the same questions, and that, too, at no other expense than what each Government should choose to incur for the discussion and publication of the observations that are made by its own citizens or subjects.

"What is wanted in a system of observations like this is uniformity. Hence, coöperation—an agreement to observe the same things at the same times—is essential to anything like success. We want not only corresponding observations as to the time, but we want them made with instruments that are alike, or that can be compared; and then we may expect to find out something certain and valuable, concerning the movements of this grand and beautiful machine called the atmosphere.

"If you ask me to state beforehand what particular discoveries or special results of value I expect to make, I answer, If I could tell, I would not ask your assistance to make them. The fields meteorological are large—there are many of them, and all that I do know about them is, that there is in them *mighty* harvests of many sorts.

"I make the appeal to the farming interest especially, because that is the great interest to be subserved by the scheme; and if the farmers do not really care enough about it to use their influence with their Representatives in Congress to procure the very trifling appropriation that is required to get it under way, I do not see why I should give myself any further trouble in the matter.

"Will you not bring the subject in some tangible shape before the Agricultural Societies of the country? A simple memorial from them to Congress would not fail to procure all the legislative aid necessary.

"Some of the leading scientific men of Europe are ready to join us in such a plan; and with authority to confer with them *officially* as to details, I have no doubt that most of the goverments of the world would undertake, each for itself, and within its own territories, a corresponding series of observations, so that we should then be able to study the movements of this great atmospherical machinery of our planet as a whole, and not as hitherto in isolated detached parts.

Respectfully, etc.,

"M. F. Maury, Lt. U. S. N."

PROBLEMS AND TABLES OF WEIGHTS AND MEASURES.

ONE pound Avoirdupois = 1.21527 pounds Troy.
144 pounds " = 175 " "
Avoirdupois pounds × 1.21527 = Troy pounds.
" ounces × .9115 = " ounces.
Troy pounds × .823 = Avoirdupois pounds.
" ounces × 1.1 = " ounces.
" grains × .03657 = " drachms.
1 gramme (French dec. system) = 15.4340 Troy grains.
1 pound Avoirdupois = 27.7015 cubic inches of distilled water.
1 gallon of distilled water weighs 10℔ Avoirdupois.
A cubic foot of distilled water weighs 62.5℔ Avoirdupois.
A wine gallon contains 231 cubic inches.
An ale " " 282 " "
An English Imperial ale gallon, dry measure, = 277.274 cubic inches.
A pint English Imp., wine measure, = 34.659 "
A pint " dry measure, = 34.659 "
A gallon " " = 277.274 "
A bushel " " = 1.2837 feet.

FRENCH DECIMAL SYSTEM.

1 metre is 39.371 inches.

The increasing series consists of the Millimetre, Decimetre, Metre, Decametre, = .03937 inches. Centimetre, Hectometre, Kilometre, and Myriametre, the last = 10936.389 yards.

1 Gramme equals 15.4340 Troy grains.

The entire series, increasing, consists of the Millegramme, Centigramme, Decigramme, Gramme, Decagramme, Hectogramme, Kilogramme, Myriagramme.

To Find the Content of a Cylinder (Well, Cistern, &c.,) in U. States Gallons.—Multiply the square of the diameter in feet, by the length of the cylinder in feet, and this product by 5.874; or

Multiply the square of the diameter in inches by the length in feet, and this product by 0.408.

For example. How many gallons in a well 22½ feet deep and 3½ feet in diameter?

$$3.5^2 \times 22.5 \times 5.874 = 1619.02 \text{ galls.}$$

Or, 3½ feet = 42 inches, and $42^2 \times 22.5 \times .034 = 1619.55$ galls.

To Find the Force of Wind, its Velocity being Given.—Divide the velocity per second by 10, and multiply the square of the quotient by 0.229. The product will be the force exerted upon a square foot in pounds.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

SHORT AND USEFUL RULE.

SOLID feet multiplied by $\frac{45}{56}$ gives bushels of $2150\frac{2}{5}$* inches each, or by $\frac{25}{32}$ gives bushels of 2211.84 inches each.

To find the number of bushels in a square-cornered box or pile, multiply the length, breadth, and depth in feet together, and the product will be the number of solid feet, which, being multiplied by either of the above-mentioned fractions, ($\frac{45}{56}$ or $\frac{25}{32}$,) will give the number of bushels.

BENTONVILLE, IND. MERCHANT KELLY.

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* "Standard bushel."—ED.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

COUNTRY HOUSES.

MR. EDITOR :—One of the most common features in the houses of the country is the want of taste, visible in all sections of the country. These dwellings are mostly the homes of the farmer, and surprising it is to see how little time is spent in improving them and making them look as a farmer's home should. Most of them were placed close to the highway with a door-yard perhaps in front, of twelve by twenty feet, fenced off from each corner of the house and running to the street fence. Hence this yard comprised all the "grounds" the house had, and sometimes even this was wanting, as in many cases these houses were set directly on the street. At the present time a little more taste may be shown in the buildings or houses than formerly. But in the situation of the farmer's house and the grounds around, very little, if any, improvements have taken place in the last forty years. For some reason or other, people living in the country have a fear that they shall not see everybody that passes in the street, and so the houses must be built directly on the highway, to gratify this curiosity ; and of course all the dust and dirt of the street in a dry time must be endured for the sake of seeing the "natives" as they pass by. Now it is astonishing to see what parsimony many farmers with large farms will exhibit in reference to an acre or two of ground for building a house. But ordinarily it is more owing to a want of a just appreciation of what a farmer's house should be, than from a real penuriousness. All this difference comes from education, an education which every farmer may have by a little care and study, but which they so often neglect, believing it more necessary to increase the number of acres than to make permanent and lasting improvements on what they now possess. Of course those farmers who occupy old farm-houses of a former generation cannot change the situation, though the back-grounds may often be enlarged, and the whole premises can be changed when the right spirit is set at work. For instance, if the kitchen garden is close to the house, as is often the case, take up all the old board and picket-fence between the garden and door-yards, also remove all the old rail fences near the house, and make one good substantial fence around the outside, making but one yard of the whole. The kitchen garden, of course, will be removed to a place outside of the yard-fence, while the old garden can be used for fruit-trees, flowers, shrubs, etc. The old cow-houses, hog-pens, etc., if they are pretty near the house, as they often are, should be removed if they can be, especially the hog-pen, or a high board-fence may be put up in front to cut off the view from the house.

Here we only give some ideas how an old-fashioned farm-house may be improved by a little labor and taste. And when the farmer once commences an improvement of this character, he will find that as he goes forward with his improvements, new ideas will constantly turn up which will show him the value of such embellishments. All that is wanted by the farmer is a little exertion on his part to go forward and enter into this business. Of course where new grounds are to be laid out, a different plan will be carried out. In this case, the farmer can select his own grounds and make all the arrangements to his liking. An acre of land (two are better, and three or four better still) for a court-yard or "lawn," with the house standing on the highest point of land, the out-buildings a little below this level and in the rear, a country place can be made to make a good appearance. Whatever is the size of the yard, allow no cross sections of fences, but have one good substantial outside fence of wood, wire or iron, as the case may be. Where the yard is composed of five or six acres, the kitchen and flower gardens may be placed in the rear of the buildings with suitable enclosures. It is also well to select the site for your house and out-buildings in or near a group of natural forest trees, for shade and protection, if they are at hand. Apple trees and cherry trees may be used for this purpose. Should neither of these be within reach, as will often be the case, then it will be time and money well-spent to transplant some large forest trees of six, eight, and ten inches in diameter at the trunk, to shelter your house and out-buildings from the sun's rays, and storms. This may be done by the "frozen ball method," which we have often named before, which most northern cultivators understand. The plan is, just before cold weather sets in, go to the forest and select your trees for removal, then dig about them, cutting off all the branching roots, leaving the main tuft roots at the bottom uncut. In this way the tree must stand till the earth about the roots is frozen to a solid ball. In the mean time the holes for the reception of these trees must be dug, and all prepared before cold weather sets in. They should be dug some two feet larger than the ball of roots, and the space filled in with yard soil so as to give the young rootlets a good start in the spring. If there is a light snow on the ground the trees may be removed on an "ox-sled" or two drags fastened together. The trees must be raised from their bed by means of long levers, pulleys, etc., and placed on the sled. It will require a great number of hands and a strong team, according to the size of the trees to be moved. In most situations the trees will require bracing during the first winter they are set, to guard against winds and storms. When the work is well done they will continue to grow without much check the next season, and ordinarily none of the top need be cut off. Some cultivators have done well by removing large trees in the spring. It will be seen that the peculiar advantage of this system of tree-planting is, that you have fine shade trees to begin with, on a new place, instead of having to wait ten or fifteen years for small trees to grow up for shade. This is quite an item of economy in time.

In giving a description of what a farmer's country-house should be, we can only name the outlines, as the other points must be filled by the farmer himself. One thing we will name. Generally, now, where a farmer wishes to build a house, he just goes and consults the "builder," commonly a house-carpenter mechanic. Of course he finds out what the lowest "job" price for a house may be. Then if he concludes to build, the plan and "architecture" of the house is left to this "builder" to determine, which in most cases will be a mere "copy" after some dozens of others. Now the farmer should know something of style and architecture himself. Then he should consult the best works on that subject, and not depend on the house-carpenter for this service. The farmer will find that it will cost him no more to build his house in a tasteful style, than to build it in violation of all the laws of good taste and of the rules of architecture. L. DURAND.

DERBY, Ct., September, 1855.

INSECTS INJURIOUS TO VEGETATION.

ORTHOPTERA. We now come to the next order of insects, the characteristics of which have already been given, and may be found on page 73, of the August number of this volume. All orthopterous insects are furnished with transversely movable jaws, resembling those of beetles. They do not undergo an entire transformation, but the young often closely resemble the adult insect. The changes which they undergo are a series of moultings, during which their wings are gradually developed. When fully grown they cast off their skins and appear in a perfect state, except that a few remain wingless. In their pupa state they are active and voracious; some species, like cockroaches, eating whatever they find, whether animal or vegetable. Some are carnivorous, devouring other insects. But most of them subsist on vegetables, and hence are very destructive, when they appear in large numbers.

This order is divided by Harris, after some of the older writers, into four groups, viz: Orth. Cursoria or Runners, Orth. Raptoria or Graspers, Orth. Ambulatoria or Walkers, Orth. Saltatoria or Jumpers, the name being suggested by the habit of the insect.

1. RUNNERS. Earwigs, which belong to this group, attack flowers, eating holes in their petals, and destroying their beauty. They also attack ripe fruits, as melons, etc. They are very timid, and often secrete themselves in the bottom of flowers, when their heads are covered, though their forked tails may be exposed to sight among the stamens and pistils. When disturbed, they run into the nearest hole, and they always hide themselves from day light. This habit has induced gardeners to provide hollow reeds, and other like contrivances, which will furnish these insects a convenient shelter into which they flee when alarmed, or as the day dawns; and in the morning they collect and destroy them.

The true Earwig has a long body, which is somewhat flattened, armed at the hinder end with a pair of slender sharp pointed blades, which they open and shut like scissors or nippers. They are not common; the name is often misapplied.

Cockroaches do not attack our growing fruits, and hence are not described in this connection.

Insects belonging to the second group are exclusively predacious, destroying those that subsist on vegetable food, and hence are useful rather than injurious. They are found chiefly in tropical climates.

There are in our climate very few insects that belong to the third group, these being also chiefly confined to tropical climates. They present a great variety of grotesque forms. Among those of this group which are sometimes found in our latitudes are:

Spectrum femoratum, a long, but very slender insect, cylindrical, oval; antennæ, long and slender, with numerous joints, and inserted before the eyes; they are usually of the color of that on which they rest. They are perfectly inoffensive, feeding exclusively on vegetables. This insect is described in Long's Expedition as found at Niagara Falls, and in Missouri. It has also been noticed in New-Jersey and in Massachusetts.

Spectrum Bivittatum. This insect is brown or black, with two yellow stripes extending from the head to the posterior extremity, antennæ a dull reddish brown; beneath, of a dull yellowish clay color; feet dusky, thighs unarmed, blackish towards the tip. The female is much larger than the male. They frequent the Orange Palmetto, and other trees in Georgia. When taken, they discharge a milky fluid, from two pores of the thorax, having a strong odor, like that of the Gnaphaleum.

Insects of the fourth group are by far the most numerous and most destructive. Achetæ, or Crickets, the Gryllidæ, or Grass-hoppers, and the Locust-adæ or Locusts, belong to it.

Achetæ, or Crickets are nocturnal insects, generally keeping themselves in concealment by day, though some species are found by the way-side and in paths at all hours. They often burrow under loose stones or clods of earth. These are *mole* crickets. They are about an inch and a quarter in length, of a light bay or fawn color, and are covered with a velvet-like down. Their wing-covers are not half the length of the abdomen. The wings are short, the fore-legs are contrived for digging, the shanks broad, flat, and three-sided, lower side divided by deep notches into four finger-like projections, resembling the hand of a mole, and hence this is called the *Gryllotalpa* or *Mole-cricket*. *Gryllus* being the ancient name for the cricket, and *talpa* that of the mole.

This cricket, *acheta gryllotalpa*, infests gardens and meadows, and by burrowing among the roots of grass, grains, and other vegetable growths and cutting them off, does much injury.

Our common species has short wings, and hence is called *Brevi-pennis*, in distinction from the European, which has long wings.

Crickets deposit their eggs in large numbers, in the ground, during the fall, and these are hatched in the following summer. Many of the insects die in the winter, but others shelter themselves under stones and in holes. The mole-cricket changes its abode according to circumstances. In doing this, it does not usually come out at the surface of the earth, but creeps, like the mole, through passages which it has dug for itself underground.

The "singing" or "chirping" of the cricket is produced by the males only, and is the result of rubbing their wing-covers together.

The following mode of destroying this insect is given by Kollar. "In the month of September, let three or four pits be dug, each two or three feet deep, and a foot wide, on a flat surface of about six hundred square yards. These pits are to be filled with horse dung and covered with earth. After the first frost, all the mole-crickets of the neighborhood will collect there to shelter themselves from the cold, where they may be destroyed in heaps."

The GRYLLADÆ, or "Grasshopper" family are well known, and in some seasons of the year are very abundant. But in our country, hitherto, they have not been particularly destructive. Such however is not the case with other regions. The migratory locust belongs to this genus, and the terrible desolation produced by this insect is well known. In Africa, they appear in legions, and the devastation they commit is terrible. In a few short hours they devour every green thing over large tracts of territory. So dense are the masses in which they move, that they resemble a thunder-cloud. They have appeared in various parts of Europe, from Tartary, and have even found their way into England. In 1813, the French Government issued decrees, offering premiums for the insects or their eggs, with a view of destroying their larvæ. The plague, so frequent in the East, has been ascribed to the decaying of these swarms of locusts. It is supposed to be the G. migratorious which constituted one of the plagues of Egypt. They are sometimes used as food, and in the East are constantly offered for sale. Travelers have assured us that they form an agreeable diet, having the taste of cray-fish. The Arabs preserve them in a dry state. They are described in the New Testament, as having served as the food of St. John the Baptist. They are about two inches and a half in length. Their head and neck are green, body brownish, upper wings brown, melting into greenish, and with darker quadrangular spots. The under wings are transparent, and greenish towards the body. The blue upper jaws are furnished with sharp teeth. (Kollar.)

Gryllus formosus. The body is pale green, antennæ yellowish, thorax armed with numerous small denticles, above compressed, very much elevated into a regularly bow-shaped keel. Keel with two yellow radii, and yellow anterior and posterior edges. The Hemelytræ or wing-covers, with about six large brown spots, with pale wing-cells. It is a very beautiful species. Major Long found this insect on the Arkansas River.

Gryllus hirtipes is another species, very curious, but rare, occurring with the preceding. Its specific name is descriptive of its hairy feet.

The species of grasshoppers and locusts are too numerous for detailed de-description. Dr. Harris describes nearly thirty species. They are not often seen in so large numbers as to be very destructive to crops, though such an event has occurred in our own country, and during the present season the country around the Great Salt Lake has been utterly laid waste by them. Whether this is the true *Migratorius* we cannot judge, not having seen a description of the insect, but it probably is so.

As to the mode of destroying them, it is obvious that when they appear in such immense masses, their actual destruction is out of the question. Their numbers may be diminished by drawing a piece of cloth held obliquely over the ground by four persons, the lower edge sweeping the surface. Thus they are collected in a sort of winrow, and by a proper management of the sheet, they may be secured in a heap, and poured into bags. They should then be immersed in boiling water, and afterwards given to the hogs. The evening is the proper time for this service. Such means have proved beneficial. Several bushels of insects have been collected in a single evening.

In France, in 1825, six thousand, two hundred francs were paid, at Marseilles, in premiums, a franc being given for a kilogramme, about two and a half lbs., or a quarter of a franc for the same weight of eggs.

When meadows are in danger of being materially injured by grass-hoppers, the grass should be cut early, by which means a larger part of the growth is preserved, and many of the young grass-hoppers, being thus deprived of their food, will perish.

Domestic fowls, and some species of birds, devour great numbers of crickets and grass-hoppers. Turkeys will fatten upon them, when they are numerous.

The order HEMIPTERA, exceedingly prolific and destructive, is next in order.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

SEVENTEEN-YEAR LOCUST.

Mr. Editor:—In Vol. 8, No. 1 of your valuable publication, the Natural History of the Seventeen Year Locust is given.

About the year 1820, the said locust made its appearance in myriads in E. Feliciana Parish, La. They have been found in that Parish four feet beneath the surface of the earth, in the chrysalis state, whence they make their way to the surface, in what length of time is unknown. But when the period of changing to a superior state of existence arrives, they simultaneously appear above ground, leaving a perfectly round hole nearly vertical, 10 or 12 inches deep. The insect in the chrysalis state is encased in a semi-transparent substance that might be compared to horn of the same thickness. They have strong necks and fore-legs, and, as their eyes are shelled over, are not afraid of dirt, but like the mole can press the earth aside and force themselves through.

These insects contrive to get above ground during the night, and, though their pace is slow, find some post, tree or stump on which they ascend, and before morning leave the homely dress they brought with them from the interior, sticking to whatever gave them support, but with a terrible rent in the back. When they first assume their superior state of existence they are literally "soft-shells," but a few minutes of good sunshine invigorates them, their shells become "hard," and they are able to soar aloft and become harmonious.

In or about the year 1820, those locusts were so numerous in E. Feliciana Parish that it was useless to listen for a bell.

The males alone are musical; the music is played on two little shell or glass-like balls about the size of a duck-shot, under the wings, by a tremor of the wings acting on said balls.

The females are peculiar. They are furnished under the extremity of the body with two reddish-brown sword-shaped instruments, the curve turned upward. With this double instrument, they perforate the under-side of twigs about half the size of a man's little finger, making holes with each sword at a time—the sword, being slightly separated, and the holes slanting to about 45 degrees backward from the insect, from the perpendicular of the twig. These holes were filled with eggs resembling fly-blows, five or six to the hole. The twigs operated on had from three to seven, generally, of these perforations, lengthwise of the limb, and about an eighth of an inch apart. The eggs, after looking plump and remaining about four weeks, hatched out, nobody knew when, and disappeared in the ground as was presumed.

In 1831 the locusts reäppeared in E. Feliciana to a small extent. I should probably not have recollected the circumstance but that the publisher of the village paper predicted great ravages from them, mistaking them for one of the plagues of Egypt.

The W on the back mentioned, was in the locality where I saw them, on each wing. From that circumstance the old ladies in the country predicted war.

It is a great mistake to presume that the locust of our country ever cuts off the limb of a tree; they have no mandible. If they derive any sustenance from vegetation it is by suction with the slender bill they have. Some twigs die from the perforations made for depositing eggs.

The insect that circles or cuts off twigs is a species of beetle, and probably eats into twigs for food. It is the progenitor of the Flat-Head or Sawyer—a good bait in fishing for perch, and extremely destructive to pine timber.

W. M. D.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

FOREST TREES OF NICHOLS, TIOGA CO., N. Y., AND THEIR USE.

Fagus Ferruginea, Beech.—The Beech is a very common tree in this vicinity, and is seldom found on high land unless associated with common hemlock; tree is from 50 to 60 feet high, and from 15 to 20 inches in diameter, seldom two feet; bark, dark gray and smooth, about ⅜ of an inch thick; wood, of a yellowish white color. Sometimes large trees with a red heart, 6 or 8 inches in diameter; wood, smooth grain, and very hard when seasoned; when green, of uncommon weight. A log put into water instantly sinks. Leaves; elliptical-ovate, acuminate, conspicuously toothed, with 15 or 16 ribs on each side of the leaves, and a notch or tooth at each rib. Leaves from 2 to 5 inches long, and 1½ to 2½ inches wide, on short stems; flowers appearing about the middle of May in clusters, appearing like a small round ball of fringe of a reddish green color. Nuts in a roundish shuck, dividing into four parts, and covered with soft prickly nut; two together, and nearly three square, or the shape of a grain of buckwheat, about ⅜ of an inch long, ripe about the middle of October. Nuts this year in great abundance, generally abundant every other year. The wood of the beech is used very extensively for fuel and plane stocks, and seldom for any other use in this vicinity; wood, generally strait grained, and works into fuel very easily. The trees are frequently hollow at the butt. The ash of the beech like the different maples is deficient in alkali, and the wood soon decomposes if left exposed to the weather. Trees cut in the latter part of winter begin to decay in the fall, especially small trees. The stumps from small trees sprout freely for a few years, when they die, and the stump is soon out of the ground.

The beech-nut furnishes a large amount of food for hogs. Farmers hogs frequently live the winter through on the nuts, and become very fat. They are also gathered for household use, being excellent for eating. It is thought by some that there are two varieties of the beech, but I have never been able to discover this. Large trees have frequently a red heart, which small trees seldom have.

Carpinas Americana.—Hornbeam, Water Beech.—No.2.—The Water Beech, as it is called in this vicinity, is seldom found except in the vicinity of streams, and rarely on hills, unless on wet land with hemlock. Tree from 15 to 25 feet high, seldom over 20 feet, and generally 7 or 8 inches in diameter; a few in this vicinity are 12 or 14 inches; generally in open woods, low and branching like an apple tree. Trees often grow with two main branches; trunk of the tree very uneven, being full of grooves and ridges, and frequently for a space of several inches nearly flat. The bark is nearly smooth, and generally is covered with two or three varieties of moss. The bark is of a dark color. The leaves are from 2 to 5 inches long, and from 1 to 2 inches wide, with 12 or 14 ribs on a side, and generally three notches between each rib. The leaves often terminate in a sharp point. Stem of leaves ¼ inch long; flowers in April. Fruit, a nut on long stems, in pairs; at the base of the involucral scale, nuts flattish round, half of the size of a grain of wheat, sharp pointed, ripe early in October. Wood heavy, close grained and excellent fire-wood, also good for levers, being very stiff.

NICHOLS, September 10, 1855. R. HOWELL.

THE LARCH FOR TIMBER.

HOWITT, in his Rural Life in England, gives the following valuable suggestions:

"Larch will supply ship-timber at a great height above the region of the oak; and while a seventy-four gun ship will require the oak timber of seventy-five acres, it will not require more than the timber of ten acres of larch; the trees, in both cases, being sixty-eight years old. The larch at Dunkeld, grows at the height of 1,300 feet above the level of the sea; the spruce at 1,200; the Scotch pine at 700; and deciduous trees are not higher than 500. The larch, in comparison with the Scotch pine, is found to produce three and three-quarter times more timber, and that timber of seven times more value. The larch, also being a deciduous tree, instead of injuring the pasture under it, improves it. The late Duke of Athol, John the Second, planted in the last year of his life, 6,500 Scotch acres of mountain ground solely with the larch, which in the course of seventy-two years from the time of planting will be a forest of timber fit for the building of the largest class of ships in her majesty's navy. It will have been thinned out to about forty trees per acre. Each tree will contain at least fifty cubic feet, or one load of timber, which, at the low price of one shilling the cubic foot, only one-half of its present value, will give £1,000 per acre, or in all, a sum of £6,500,000 sterling. Besides this, there will have been a return of £7 per acre from the thinnings, after deducting all expense of thinning, and the original outlay of planting. Further still, the land on which the larch is planted, is not worth above ninepence or one shilling per acre. After the thinnings of the last thirty years, the larch will make it worth at least ten shillings per acre by the improvement of the pasturage, on which cattle can be kept summer and winter."

MANUFACTURE OF NEEDLES.—In the manufacture of needles, the hardening process is effected by heating them in batches in a furnace, and when red hot throwing them into a pan of cold water. After this, they are tempered by rolling them forward and backwards on a hot metal plate. Then comes the polishing. On a very coarse cloth needles are spread to the number of forty or fifty thousand; emery dust is strewed over them, oil is sprinkled, soft soap daubed upon the cloth, and the cloth is then rolled hard up and thrown into a wash pot to roll to and fro for some hours, when they are rinsed in hot water, rubbed in sawdust, and look as bright as can be.

EXTENSIVE LUMBER BUSINESS.

The Three Rivers (Canada) *Inquirer* gives a very interesting account of the vast business operations of Norcross, Philips & Co., and illustrates the almost inestimable advantages which a community may derive from the judicious enterprise of a single individual or firm.

On Thursday evening, the Hon. Mr. Drummond, Attorney-General, visited the extensive establishment owned here by Norcross, Phillips & Co.; minutely inspected the entire, and expressed his admiration of the economical distribution of the Motive Power, and of the excellent and suitable arrangements of the establishment.

Though the Saw-Mills under notice are only in the second season of their operations, they give employment to about three hundred persons, who receive liberal wages and permanent work. Had we not this resource in the immediate vicinity, in these extremely dull times, the laborers and some of the mechanics of the town would have suffered severely from the stagnation of business, and the high price of produce. Three hundred men, if married, represent a population of 1500; it therefore must be regarded as no small benefit to this class of our population, that so many are presented with the means of securing a comfortable support.

We cannot pretend to give an accurate account to our readers of the full benefit that our people derive from this establishment, but they may form an approximate opinion, when they are informed that upwards of one hundred thousand pounds are invested by the time the lumber reaches a market, thus including in the wide sweep of its benefits all classes, from the steamboat proprietor to the day-laborer. The proprietors reasonably calculate on sending this season fifteen millions of feet to the American market, and that this calculation is based on moderate data, may be presumed from the fact that, with four double gangs of saws, seven hundred and seven thousand feet of lumber were sawed in one week, and in eleven hours on Saturday last, 73,000 feet were cut. Shingles and clapboards are extensively manufactured; about ten thousand daily of the former, and four thousand of the latter. Window sashes and door frames, etc., will also be manufactured.

In addition to all this, a large machine house is erected, and executes steamboat and other machinery. The firm intend to commence the manufacture of sugar shooks for the West Indian market, as some of their limits abound in timber well suited for this branch of trade. One pervading rule of economy and regularity pervades the entire establishment. Even the saw-dust and refuse odds and ends of sticks are shovelled into the furnaces, and are found more than sufficient for fuel, and from an accurate calculation made by one of the partners, we were convinced that a steam-mill at the mouth of the St. Maurice could be worked as cheaply as a mill with water-power 20 or 30 miles higher up.

The great obstacle to lumbering operations hitherto, has been the excessive cost of the transit of provisions and cattle, 100 or 150 miles up the river. This difficulty, entailing enormous expense, and prodigious waste of time, was promptly perceived by Messrs. Norcross & Philips, and to obviate it, they constructed a steamer, and had it launched. This boat is of 100 horse power, 120 feet in length and 20 feet wide, and now navigates 70 miles of the St. Maurice, above the Piles.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL

AGRICULTURE, ETC., OF INDIANA COUNTY, PA.

[THE following interesting communication is received from a friend at a point near West Branch, about ten miles from the head of the Susquehannah, called Cherry Tree.]

This place is so called from the fact, that when William Penn made one of his purchases of the Indians, (the place of contract was down the river about Curwinville or Oldtown,) it was agreed that the purchase line should cross the river as high up as two Indians could row a canoe with two white men as companions. They set out, and having rowed as far as they could well do, they drew to shore, and at the place of landing was a large wild cherry tree standing, to which they tied their canoe. At the point where this tree stood, the southern line of the purchase crossed the river from east to west. This line is the dividing line between Clearfield and Cambria Counties, and cuts Indiana County on the dividing line between the townships of Montgomery and Green. Hence, the Cherry Tree is the point at which the purchase line, and the line which separates Indiana County on the west, from Clearfield and Cambria counties on the east, cut each other at right angles. Hence, also, the Cherry Tree is a point at which two counties and four townships corner. From the above you will see why this region is called the *Cherry Tree*. This region is also called the *Pine* region, from the fact that White Pine is very abundant all along the river on both sides for several miles back in the country. It is also called the Lumber region, from the fact that vast quantities of pine lumber, in the forms of hewn-timber, spars, and boards, are run down the river in rafts in the spring and summer during high water, or when, as they say here, there is a flood. This lumber is sold mostly at Marietta, below Harrisburg, to lumber merchants from New-York and Baltimore, and other places, whither it is taken by them for disposal. The lumbering season here is, for the most part, a very busy, laborious, and hazardous one. Sometimes it is very remunerative, as it was last spring a year ago. And sometimes, as last spring, it is a losing business.

As for agriculture in this region, owing to the heavy growth of pine, and the recent date of the beginning of operations here, not much has been or could well be done in that line. The people have been most dependent on buying their provisions, both for man and beast, abroad; that is, out of the Pines, in the older settlements till the last two or three years. The timber is now getting so reduced, that the people are beginning to prepare the ground, divested of its native products, for the plough and the seed. For the last three years or so, the face of the people has been setting strongly towards raising their own bread and meat. Last year especially, the clearing fever run high and strong, as if emulating the fever (drought) of the outer world. The last season was the most favorable for clearing of any ever known here, and every man seemed to put his best foot ahead to see how much he could clear. And the very legitimate consequence was, that a very large breadth of new ground was sown to wheat last fall, that is, for this region, and the winter and summer were both favorable to its growth, till the harvest. But during the time of harvest there was so much rain, that the crop was considerably injured, and yet wheat has fallen in price since harvest from two and a half dollars to one dollar and even less in some cases.

Oats were, perhaps, never better or more abundant here than this season. Owing to wet weather, considerable difficulty was experienced in harvesting the oat crop as well as the wheat. Oats have fallen in price from about a dollar down to about twenty cents, and some are expecting that they will be down to twelve and a half cents before spring.

The Rye crop was also good, and the price, instead of two dollars, as last spring, is slow at fifty cents.

The Corn crop looks very promising now, and more acres were planted this season than perhaps were ever planted before in one season in these parts. If the corn comes to maturity, there will probably be a fall in its price from one dollar and fifty cents to I cannot tell what figure. The fore-part of the season was very unfavorable for corn, so much so that it had made but little headway by the first of July. Hence it is late in ripening. We have had no frost yet, except a harmless white one on the morning of the 19th of August.

The Hay crop was very good, all things considered. There was a dry spell about the last of May that threatened the hay crop somewhat, but at the time of cutting it was very good. But the rains were so frequent and abundant during and after haying, that much was spoiled. In fact, there is but little good, bright, sweet hay about these regions.

The Buckwheat crop now promises an abundant yield if no ill betides it, and, for these parts, a large breadth was sown. The starvation prices of the last year or so up to harvest, has had the effect of urging every man to raise all he possibly could of any and everything eatable for man or beast. So great was the scarcity, and so great the demand for seed buckwheat, as I have been informed, that it was sold at seven and even nine dollars a bushel. But if the crop comes in as abundantly as it now gives promise of doing, it will probably be humbled in price, like all its neighbors, to a low figure.

The Potato crop had, all along through the season, threatened to a be very abundant and healthy one, but, alas, during the last two weeks it has sadly changed its tune, and cries rat! rat! rat! so that, I think, the people instead of turning up their saucy noses in view of their abundance, will be very apt to turn them up at another smell before winter or spring. Prosperity makes some people very saucy and thankless. Like Jeshurun, if there is but even a prospect of waxing *fat*, they will begin to kick. They can't wait till they are fat. This has been, in truth, a very wet season—as wet as last season was dry. The rains have been not only frequent, but powerful, as though the very doors and windows of the clouds had burst open, and the winds were in keeping with the rains. It has been no uncommon thing to go out after the storm was passed and see the roads and fields all gullied out, and the corn and potatoes, etc., etc., lying exposed in all directions. On the whole, I think, that the *practice* of agriculture has been greatly on the increase here during the last three years, and bids fair for the future. I could wish I were able to say as much for the *science*. Most of them would think that the price of agricultural books and papers, and the time spent in reading them, as bad, if not worse, than thrown away. But the *world* moves, and thank God, (the great and the good,) the *science* as well as the *practice* of agriculture *progresses*, and will progress, till *righteousness*, and *peace*, and *truth*, shall reign throughout all the earth. "Till every man shall sit under his own vine and fig tree." "Till the nations shall beat their swords into ploughshares and their spears into pruning hooks." Glorious day that compared with this. God speed the cause of *agricultural science and practice* until the wilderness and solitary places shall be made glad, and the barren waste shall become a *fruitful field*, and the earth shall yield her strength, and the family of man shall become one *great, peaceful, prosperous, and happy brotherhood.*

A County Agricultural Society for Indiana County was formed last March in Indiana town, which is trying to do something for the noble cause. It is to hold its first annual Fair about the middle of next month, (October.)

Praying the blessing of God *Most High* to rest upon you and the noble cause of agricultural science and practice in the world, I remain,

Yours truly, D. M.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

NOTES FROM THE FAR-WEST.

Mr. Editor:—Your valuable periodical, which punctually reaches us in these almost outskirts of creation, is perused with great interest, and as heretofore I have occasionally supplied a few of its pages with observations upon this part of the country, I resume my pen, and offer other gleanings, not, I think, uninteresting to the lovers of Agriculture.

Our harvest is now rapidly proceeding, and by far the greater part of the grain is secured in stacks, and in another week the oats and barley will also be saved. The yield is abundant, and the quality excellent; perhaps not so much bulk in straw as last year, The weather also around this region of country, with the exception of a few days, has been all that could be desired. Reaping machines are heard by the traveler as he passes along the road, and every hand that can be got is eagerly pressed into service.

Wages with us are not quite so exorbitant as last year, nor are hands quite so scarce.. No grain this year, I believe, will suffer or be lost for want of help, as was then the case.

The crop of corn promises exceedingly good; the stalks, owing to the timely showers, are strong, and the ears are putting themselves out in a remarkably fine manner. The long drought in the spring made the farmer very anxious about this crop; many replanted, but eventually rain came, and all was rectified. This article has strangely risen in price since my short residence here; from 25 cents to 65, on the cob, per bushel.

Hay with us is not a heavy crop; but enough, and what has been preserved is in first-rate order. The old stock of hay has been entirely consumed, and we had almost a panic last spring, as many farmers were out of it before the grass grew. Gold would not purchase it, although it had risen from three to ten dollars per ton; but we were much more highly favored than many other neighboring parts of the country.

The past winter was extraordinary for the quantity of snow. The oldest settler says he remembered but one such before. High drifts of snow-banks, storms of the same, continuing twenty-four hours, cold piercing winds, etc, made it a hard winter for cattle, and but few got through without some loss. It fell more heavily upon sheep than any other kind of stock. Many lost nearly the whole of their lambs, and, owing to the lateness of the spring, numbers of their old stock died.

There is too much inattention and carelessness here about live stock. The country is large and not fenced, and many roam away and are never sought after. Winter provender has usually been abundant and cheap, and the winters such that cattle have shifted a great deal for themselves upon the numerous stacks of straw and corn-stalks which have been left standing in the open prairies. But as stock and provender have increased in value, and the waste lands become enclosed, more attention is paid to this branch of husbandry, particularly in improvement in the breeding and rearing of all kinds of cattle.

The dairy here is perhaps the most profitable part of the farm. I have seen cows yielding from the udder quantities of milk quite equal to anything I have known in the East; but here they dry up sooner, as the prairie grass does not grow so late, nor is the bottom any thing like the thickness which we find in the old pastures of the longer cultivated States. A friend of mine has this spring introduced a fine Durham bull, which is expected to take the premium at our coming annual county fair. Coming from a more Southern clime, it will be needful to guard it against the rigors of our severe winters; and I have my doubts whether its progeny will ever be so fine and heavy as in a warmer temperature.

Rock County, on the north-western part of which lies my landed property, on the meandering Catfish stream, but which has now received the more classical name of *Wyhorra*, is said to possess a soil inferior to none in any of these Western States. Several new occupants from the East have bought within sight almost of my residence, and several new houses are going up. The breaking-plough, with its team of from four to eight yokes of oxen, is turning over the new soil, into which no ploughman has ever before probed.

Horses with us maintain an extravagant price; but many are brought from Ohio, which may be purchased at a more reasonable rate. One hunded and fifty dollars will buy a good horse, and not much less. It is a great country for raising these animals. It is rare to meet a team without a colt and sometimes two, jogging beside their mothers. They are put to work too early, and then sometimes become prematurely old. This creature here, I sometimes think, seems doomed to mishaps. A neighbor of mine found his only one cast and dead in his stable the other morning. His almost next resident lost one by its slipping upon the ice and breaking its leg; while my son's, a most valuable one, a few days since was struck by lightning and killed instantaneously.

Sparsely as at present this part of the country is settled, there has yet been a fever for emigration, and numerous families have left this vicinity for Iowa and Minnesota. Some who went to reconnoitre have returned, fully satisfied they should not be benefited by a removal. Most have gone to buy Government land, which can be had at a much cheaper rate than with us, where speculators have got possession of the greater part. Lands entirely unimproved have this season been sold at prices from seven to fifteen dollars per acre.

These new States have a fine opening for the raising of fruit and ornamental trees. I have a young apple orchard now beginning to bear. The trees are luxuriant in their growth; and I intend next spring to head them down considerably by pruning. My peach trees two winters ago were nearly killed by the severity of the frost, but since then they have made fresh shoots, and nothing can appear more healthy. Some young vines of the Isabella and Catawba kinds, which I brought from the East two years ago, have this season a few bunches of grapes upon them, and the bearers are extremely luxuriant, requiring a little protection, while young, during the winter.

I am trying to prevail upon the farmers to plant ornamental trees around their homesteads. I planted, the first year I was here, seeds of the Alanthus, Locust, Laburnum and Katalpa, and some of them have now the height of eight or nine feet, with which next spring I hope to ornament my dwelling and the land contiguous thereto. AGRICOLA.

FREEDOM, Wis., Aug.

VERD-ANTIQUE.

WE have more than once referred to the new quarries of this elegant marble, opened in Roxbury, Vt. A recent number of the *Boston Traveller*, describing their machinery, highly commends the rock as more durable than other marbles, "resisting the action of acids," heat, frost, etc.

We value this rock as one of great importance in ornamental architecture, giving us a material that is easily wrought, and susceptible of a beautiful polish. But the writer referred to runs wild.

What is Verd-Antique? Any elementary treatise on Mineralogy will inform the reader that its green is serpentine, and its white, lime stone. Serpentine, again, is composed chiefly of magnesia, with more or less of silex, alumine, oxides of iron, of manganese, etc. It is the proportion of these elements which determines the color, and some of its physical qualities. But the list of its component parts alone is enough to prove the unsoundness of the pretence that it is not affected by acids. Magnesia, its principal element, is ready at any moment to go into "fusion," as the phrase now is, with any free acid. The oxides are also unable to resist the claims of an acid. We have no doubt that particular specimens may be *selected*, in small fragments, that would bear heat or frost, or other ordinary exposure, quite satisfactorily, and other fragments will exhibit other capabilities. But let any fragment, having white veins (white marble) in it, be tested with an acid, or let other specimens, colored with the oxide of iron or manganese, be exposed to the fire. The earthy oxide is both friable and pulverulent. The black oxide is used with common salt and an acid to produce chlorine.

It certainly forms elegant pillars, columns, pilasters, etc., and we have seen very handsome fire-places formed this rock. But we think it decidedly bad taste to mix up white marble with this. The Capitol at Washington may be made a splendid pile. But if such striking contrasts, such medleys of colors, are to be incorporated into it, it will more resemble a huge baby house, than a pure and dignified specimen of civil architecture. No. Leave such ornamentations to our dashing milliners, and to those by whom the merit of any such combination is measured by the boldness of its contrasts, or by its variety of color.

The durability of a building stone in this climate cannot be measured very accurately by its condition in the antique structures of Italy, where the climate is so unlike ours, and the condition of the atmosphere is not only so variable and not so various.

We only add that this rock is not a true marble. Where the green is predominant it should be rather called serpentine, and the durability, strength, etc., of the rock will be that of serpentine variously modified by its connection with the different coloring minerals. If it is a marble, it is, of course, a carbonate of lime, and soluble in any acids.

We regard the Verd-Antique as well worthy the attention of our architects, and for their information we cut the following from the article above referred to:

"The location of the modern Verd-Antique is on the summit of the Green Mountain range, in Roxbury, Vt., in a narrow valley made by the branches of the White river and the Dog river, the former running southerly into the White river and the Connecticut, and the latter into the Winooski and Lake Champlain. The quarries lie on the westerly side of this valley, where, full of richness and beauty, as they are, they have been lying dormant, but in full view of settlers and even explorers for years and ages. The marble, so far as it has been discovered, lies in a line running nearly north and south, a distance of about half a mile immediately contiguous to the Vermont Central Railroad—the rails passing, indeed, at the very foot of the quarries. The quarries located and now owned by the American Verd-Antique Marble Co., consist of six or eight out-crops, a few rods distant from each other, and ranging in height above the railroad from twenty to one hundred feet. One of these quarries has been opened and worked to considerable extent—sufficiently to test the quality of the material, and to indicate an exhaustless supply. The marble is found to improve rather than otherwise, as the quarrying proceeds, in texture and beauty, and in all the qualities, which render it superior to other marbles, especially in strength. It is ascertained also, to a practical certainty, that blocks of any desirable dimensions can be got out and wrought with facility into all the various forms which utility and ornament may suggest.

"The Company have contracted with the Government to furnish a considerable quantity of this magnificent material for ornamental portions of the new Capitol at Washington. They are now engaged in fulfilling this contract, and among the pieces to be furnished are several columns, about a foot in diameter and ten feet in length, some of which were being sawed at the mill on the occasion of our visit. When these columns are finished and raised in their places, the American Capitol will be worth visiting for a sight of them. They will be truly beautiful, and as worthy of admiration as the famous columns of Verd-Antique in the Villa Pamphilia, at Rome.

"There is a mill for sawing the marble into slabs, or other pieces, as may be wanted, immediately contiguous to the quarry. It has five or six gangs of saws, and apparatus for grinding the marble, and is operated by a steam engine of thirty or forty horse-power. We saw at the mill many finished and polished specimens, which have been wrought to answer individual orders; among the rest a center-table slab, four feet square, and an inch and a quarter in thickness, which is extremely rich and beautiful. We venture to say that it cannot be matched from any other quarry in the world; and that it is incomparably more beautiful than any other quarry can produce. The green color, varying from the deepest to the lightest hue, pervades; and the seams or veins are of the purest white and scattered throughout the material in every direction, with a variegation of gracefulness which no art could produce. This splendid slab, we understood, had been ordered by the Governor-General of Canada.

"This Verd-Antique marble is not only beautiful in the highest degree, but it posesses other most valuable qualities, in which marbles generally are deficient. It has been submitted to the examination of practically scientific men, and tested, and found to resist completely the action of frost or moisture, and has been exposed for a long time to a temperature of 212 degrees Fahrenheit, without exhibiting the slightest effect of the action. As to durability, therefore, it must take the highest rank. It has been likewise thoroughly tested as to strength, by the ordinary mode of applying a crushing force to the square inch. In this respect it is likewise preëminent. And in another very important particular, for many purposes for which marble is used, this Verd-Antique has been successfully tested. It is found to resist effectually the action of acids. A polished slab has been exposed to the action of concentrated muriatic acid, for twenty-four hours, without the slightest corrosion or change of color being discoverable.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

WHEAT TRADE FROM TENNESSEE.

Messrs. Editors:—A century has rolled its tedious round since the article of wheat has been an important surplus in the trade of the farmer of Tennesee, and so long has Eastern Tennessee been bound by those formidable natural granite barriers to transport her products over the broad-based and close-capped Allegany and Cumberland mountains. Thus ever locked up, her hardy pioneers and their sons were forced to sacrifice their labor, till the glorious present year, 1855. In this bright year her farmers have put upon the seaboard (about one-third in your own city) about 300,000 bushels of this valuable cereal, so luxuriantly and healthfully grown in the sweet valleys and hill sides of lovely East Tennessee. It is with the greatest pride I record the opinion, that our own East Tennessee alone can annually furnish treble the quantity aforesaid for market, aside from employing all the time her manufactories of flour, which by the way are very considerable. The route over which our wheat was this year shipped from Knoxville *via* Atlanta to Charleston, S. C., thence by ship to your city, gives to our citizens but half satisfaction. The progress goes on. Already has the Old Dominion scaled the heights of the Alleganies with the farmers' iron horse, already has the proud summits of the adjacent hills been razed, and fast is the improvement pushing toward our lovely mountain-bound home. We of Tennessee are moving the very earth to greet her at the line of Virginia, and will as sure strike her veteran hand with the crash of trains, as the year 1856 rolls its last season half out. This road will bring our district at once in line of easy transport for wheat to New-York overland, a great desideratum in the transport of this article. No doubt the wheat grown in Eastern Tennessee will then, in larger quantities be re-shipped to Europe. Our facility being equal, our surplus will vie with any other district of equal area south of the Alleganies in this article. In view of this, our intelligent farmers are improving their seeds, fertilizing their lands, employing the most improved plans for harvesting, cleaning and putting up ready for market their abundant crops of the present year, which have not perhaps in *quantity* been equal to that of last year, but in *quality* far better. Talking of railroads, it may be supposed that the one spoken of, being a continuous line from the entire East to the whole South and West, dividing Tennessee into two islands of about equal territory, would be sufficient for us, but the fact is otherwise. A road is now being put under contract from Charleston, S. C., entering the State about equi-distant from its eastern border to the Cumberland Mountain west, including the district aforesaid, and crossing at right angles the road running east and west, cutting Cumberland Mountain and Cumberland Gap, and terminating at Louisville, Ky. This work is sure to be completed before long; and with branch roads to our beautiful county towns dotted along the valley, ere long Eastern Tennessee must be the garden of the South. And I am happy to add, that the recent influx of money has caused institutions of learning for either sex to be established and respectably administered in nearly every neighborhood in our mountain fastnesses. This pleasing fact is submitted as the surest guaranty of our lasting prosperity.

MILL BEND, TENN., August, 1855. A. L. B.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

FALL AND SPRING PLOUGHING.

EDITOR OF THE P. L. AND ANVIL:—Much has been said and written in regard to ploughing in the fall. Some contend that land ploughed in the fall is not as productive as when ploughed in the spring; for spring grains of the broad-cast. As your plough cuts a wide and deep furrow, (for it has a strong team to draw it,) I would be much pleased to have you or some of your contributors that till the soil for a livelihood, give their opinions upon the subject; for it is one of great importance to the farmers of this western country.

What little experience I have had in Fall and Spring ploughing, convinces me that ground ploughed late in the fall is as productive as when ploughed in the Spring, for small grain, and in many places for corn. When corn is to be planted upon sod, my opinion is that it should be turned over in the fall, late, shortly before the ground closes up with frost.

A few years since, I was working by the month for a farmer in the Buckeye State, where the soil is composed of red clay and some portions of gravel. Late in the month of November, I was set to breaking up a piece of pasture ground, where the introduction of the plough was never known to the soil. After having turned over several acres, a gale from the north-west came up in the night, and the ground was so frozen the next morning that ploughing could not be done. The remaining part of the piece had to lay over until Spring. In the Spring I finished ploughing. At the usual time of planting, corn was planted, well-tended during the season of tending corn. In the fall, when the crop was harvested, there was one-third more corn per acre where the ground was ploughed in the fall than where it was ploughed in the spring; the soil was equally as good or better where it was ploughed in the spring as where it was ploughed in the fall. The next season corn was planted again; the yield was the same as before. The next season it was sown with oats for the purpose of seeding to grass. At harvest time, like most men that work by the month, one morning I was introduced to a fine muly cradle, for the purpose of laying them in the swath, and as I cradled across the furrow, I could tell the moment that I struck the grain where the ground was ploughed in the spring. The result was the same as with the corn. During these three years I tried the experiment on old ground for oats. The result was, where the ground was broken late in the fall, the crop was by far the best. I sowed the oats as soon as it was early enough in the spring.

Whether this would prove true in all soils I cannot tell. Many of your correspondents that have tilled the soil for years, can tell me their experience in fall and spring ploughing, in the *Plough, the Loom, and the Anvil.*

L. S. SPENCER.

LYNN, WARREN Co., IOWA.

COST OF RAISING WHEAT, CORN, ETC.

THE next volume of the New-York Agricultural *Transactions* will contain a detailed farm account of Mr. William Johnson, near Geneva, from which we have the following interesting items in regard to the cost of raising different crops the last season. His statement is published in the Journal of the State Society, for the present month, and shows very creditably the order and method of Mr. J.'s agricultural operations.

The farm contains 80 acres of tillable land, divided into nine lots, numbered from one upwards, and an accurate account kept with each. The soil is dry loam, with a clay sub-soil, pretty uniform throughout the farm. Each crop is charged with the interest on the value of the land producing it, and with all the labor and material used in its production. Of wheat six acres were sown, the whole expense was $122 40; the product was 126 bushels, or 21 bushels per acre; this makes it cost per bushel a trifle over 97 cents. But deducting the value of the straw, estimated at $18, we make the cost of the wheat but 83 cts. per bushel. It was sold at $1 81, leaving a fair margin for profit at either figures. But at the price of wheat for many years past, the profit would be little or nothing.

Eight acres of barley cost $102 20, and produced 265 bushels, or 32½ bushels per acre. It cost very nearly 37 cents, and sold for $1 per bushel. This produced a greater per cent. of profit than the wheat, as we believe it generally has for a series of years.

Ten acres of corn, on clover sod, cost $153 26. The product was 410 bushels of corn, and $60 worth of corn stalks. Mr. Johnson states the cost of raising the corn at 27¼ cts. per bushel, but if we deduct the value of the stalks from the whole expense, it makes the cost of the corn but 22¼ cts. per bushel. We should be glad of some explanation from Mr. J. on this point, as the value of the stalks and straw may have been allowed to balance some part of the expenses not indicated.

Ten cows were kept upon the farm, yielding an average of 210 lbs. of butter each. Mr. J. estimates the product of each cow worth about $64, and the cost of keeping, $26 85. It costs 12½ cts. per lb. to make butter on Elmwood farm, and we think it cannot be sold for less anywhere with much profit. His pork, killed at 9½ months old, fed on milk and fattened with corn, costs 5 cts. per pound. The balance over expenses on the whole farm, for the last year was $953 52.

Mr. Johnson practices the following system of rotation. 1st. Corn, to which is applied all the unfermented manure he can get. The next spring it is sown with barley at the rate of 2½ bushels of seed to the acre, then sown to wheat in the fall, with a topdressing of fine manure, of about 6 loads to the acre. The following spring it is sown with 8 quarts of clover seed and 5 quarts of Timothy, with one bushel of plaster per acre, when it is allowed to remain three years in grass. The usual product is 55 bushels of corn, 30 of barley, and from 20 to 30 of wheat, per acre. The manure is kept under cover, and a regular system of underdraining is carried out.

A GOOD FIELD OF HOPS, ETC.

To Capt. J. Farwell & Son:

It was truly gratifying to me on the 6th inst., to witness the early picking of such a noble field of hops as your hands were then finishing in so favorable a *time*. This is just the way dictated and pursued in skilful husbandry. It adapts the crops and manure to the soil—bestows the best culture in the best season, having secured the best plants from a judicious selection of seed, it gives pleasure and profit in the process, and *returns* for vigilance and toil. At present prices, with the flavor and fragrance of your luxuriant growth, you must realize a pretty sum, while your intelligence and example will tell on the practice of other farmers who witness the results. I am happy in addressing you through *The Plough, the Loom, and the Anvil,* which for years has been a welcome visitor to me with thousands of others, who are sharing the labors of able editors and correspondents whose sentiments, teachings and illustrations, I am confident, will well accord with your views and taste, and will repay the cost and attention it so well deserves. Like a garden soil, its deep, rich, and cultivated thoughts and interesting variety will, I doubt not, incline you to introduce it to the acquaintance of those dear to you. We live for others. Our *influence* will be felt further and longer than eye and ear and tongue can reach. What we acquire and disseminate through periodicals, is almost without a limit. Soon it will be a matter of *memory* with us and with our successors. "Son, remember that in thy life time thou *receivedst* thy good things," etc. And no less of what we have *done*. "What thou doest do quickly. In haste. You may hear from me again,

Yours truly, Benjamin Willard.

Lancaster, Mass, Sept. 8th, 1856.

Self-closing Faucet.—Mr. Tuthill, of Boston, has introduced to the public some self-closing faucets for the supply of water or other fluids; the peculiarity being that there is no drip nor waste, and also an instantaneous full stream. Vulcanized rubber forms the internal spring and packing to close a valve acted upon by pressure with the finger. It is, in the truest practical sense, a self-closing contrivance, as the fluid can only run so long as the pressure of the hand is upon the valve.

STATE FAIRS.

RHODE ISLAND.—THE HORSE AND CATTLE EXHIBITIONS.

These fairs of "the Society for the Encouragement of Domestic Industry" commenced on the 11th September at Providence.

The number of horned cattle was nearly 120; of sheep, about 25 or 30; of swine, a large number, and some 25 or 30 coops of fowls.

An address was delivered on Tuesday evening in Westminster Hall, by B. P. Johnson, Esq., of Albany, Corresponding Secretary of the New-York Agricultural Society.

Mr. Johnson spoke of the need that farmers should take an interest in the improvement of agriculture through the various facilities presented by agricultural societies and other organizations and means of intelligence. The European system should be more extensively copied, for there are farms in England the annual rent of which was more than the whole value of equally large farms here, showing what care and intelligence might do. Thorough weeding, even to weeding grain, and thorough draining, were advocated as expenditures which would richly repay, and the latter in particular, by making before useless land valuable, would in a single season pay back the cost of permanent drains. The triumphs of American agricultural instruments at the London World's Fair were quoted, and it was to the support and introductory experiments of our agricultural societies, encouraging inventors, that we owed these triumphs. Educate the mind, was the motto for farmers. Sustain every society tending thitherward. Make young men intelligent,—let our country boys be made equal to the city boys in all the controlling elements of education, and it will tell on the farms and the land,—equal to every duty, even to legislating, so that the pure influence of the country air might be felt in the seats of power, sending abroad its blessings the wide earth over.

The exhibition of horses commenced on Wednesday, at eleven o'clock, with a grand cavalcade of nearly all the horses entered for premiums. The entries were, stallions, 36; breeding mares, 33; draft horses, 25; ponies, 11; matched horses, 76; family horses and roadsters, 126; family matched horses, 16; fillies, 9; making a total of 312. The cavalcade made a very fine appearance, the line of horses and vehicles extending more than around the course, which is a mile in length.

The Exhibition of Stallions, which succeeded the cavalcade, was an object of much attention, the different animals being made to show their points before the judges' stand. Some of these were most magnificent animals, principally of the Morgan and Black Hawk breeds; and among them, from Massachusetts, were "Young Black Hawk," from Harrison Bacon, of Barre; "Ethan Allen," from O. S. Roe, of N. Cambridge; a fine Gifford Morgan, Hampden, from N. R. Washburn, of Springfield; Gray Eagle, from A. Burdee, of Natick; Young Empire, from Francis Twichell, of Petersham. There were also American Consul, from L. J. Keyes, of South Killingsly, Ct.; a Black Hawk colt, "Mose," three years old, from Lowell Pitcher, of East Greenwich, R. I.; a magnificent chestnut stallion, from W. Bower, of Richmond, R. I., called "Ashuelot Morgan"; Matchless, by Wm. B. De Wolfe, of Bristol, R. I.; Morgan Black Hawk, Jesse Comstock, of Millville, R. I.; Stockbridge Chief, by P. W. Bishop, of Chatham, N. Y.

This part of the programme closed with some fine trotting in harness by several stallions, in which the animals entered by Messrs. P. W. Bishop and O. S. Roe, took a distinguished part, receiving much applause.

The Exhibition of Breeding Mares followed. Most of these were beautiful animals, and some of them proved to be very swift in harness.

The Exhibition of Fillies was also attractive, though the animals were few in number.

At a short time after three o'clock the course was cleared, and the great event of the day, to many, a trial of speed, took place. In this, although there had been thirteen entries, but nine horses competed, neither of which had ever before trotted for money, nor had their drivers taken part in prize races. The race was by mile heats, the best three in five, and continued till a somewhat late hour. The first prize of $200 was taken by Genesee, owned by Mr. Livingston, of New-York city, and the second of $100 by the Stranger, owned by Mr. Barnard, of Boston.

HORTICULTURAL SOCIETY EXHIBITION.

This Society, under the supervision of its President, John J. Stimson, Esq., and its Secretary, John F. Driscoll, Esq., commenced its tenth annual exhibition Wednesday morning. Westminster Hall was occupied by six large tables, extending from one extremity to the other, covered with fruit, flowers, etc., with an abundance of room between the tables for the comfort of visitors. The display of flowers and fruit was very extensive, constituting nearly the whole exhibition, and the air of the room was redolent with a delightful perfume.

"There were two curious plants on the tables, both imported from South America and entered for premium by Mr. George W. Chapin, through his gardener, Mr. George Anderson. One of these was a butterfly plant, (concidium,) covered with beautiful little yellow flowers exactly like small butterflies on the wing,—not a single part of the insect except legs being wanting. The other was a large cissus discolor.

"Both of these were objects of great attention, particularly the latter, which displayed its dark red and green leaves around a wire frame to the height of four or five feet.

SIXTH ANNUAL FAIR OF THE NEW-HAMPSHIRE STATE AGRICULTURAL SOCIETY.

"The Fair of the State Society of New-Hampshire opened in Manchester, Wednesday, September 12.

"The ground enclosed for the purposes of the Fair embraced an area of thirty acres. In the enclosure were forage tents for the cattle and other stock, tents for the display of manufactured articles, machines, agricultural implements, horticultural and floral specimens, vegetable produce, etc. There was a horse track one half mile round, on which the Society expended upwards of two hundred dollars. Adjacent to the track was a large gallery of seats capable of accommodating nearly three thousand spectators. The same grounds were occupied last year.

An unusual number of fine horses were exhibited. The exhibition of sheep and swine, though not large, was good. The show of vegetables was excellent, and of cloths "very superb."

The Annual Address was by Hon. Charles B. Raddock, and Addresses were also made by Hon. John M. Botts and Governor Metcalf.

VERMONT STATE FAIR.

THE *finances* of this Fair appear to have demonstrated the truth, and the importance too, of sundry suggestions which we made a few months since under the title, "Policy of Fairs," in which we contended that all charges for witnessing these exhibitions were of evil tendency, and might interfere with the good results which might otherwise be derived from them. The correspondent of the *Traveller* says:

"Within the grounds every thing seemed to pass off very satisfactorily, though in one particular, we are sorry to say, we heard a good many complaints, if not a general one, in regard to the admittance fee. At all the previous Fairs 12½ cents has been charged for a single admittance, 25 cents for a ticket good for one day, and 50 cents for a season ticket for the three days. But this year the committee, it seems, have changed the admittance fee to 25 cents for one admittance, and the purchaser is not given the privilege of entering the grounds but once on that ticket, so that if one leaves for a moment, on entering again he has to pay another quarter of a dollar; and then, to make the matter worse, no season tickets at all are sold. This extra, and we must confess exorbitant charge, the committee say they are obliged to make in order to pay expenses. At the previous State Fair, held at this place in 1852, they say their expenses exceeded the proceeds some $300, and that, too, when they had no premiums to pay, which they have this year; but we think the committee has mistaken in this matter."

The same correspondent remarks in reference to the show of horses:

"From 4 to 6 P. M., was devoted to trotting on the course. As regards the exhibition of horses—in any other part of the United States but Vermont it might have been considered as a superior show, as it really was, but it did not seem to quite come up to the anticipations of some, but it is said that numerous accessions are expected to-morrow, though to one not thoroughly acquainted with the resources of it, in reference to this noble animal, it would not seem an easy matter."

The arrangements announced for the exhibition of horses, show the superior ability of this State to acquire renown in this department. The programme for Wednesday, September 12, reads thus:

"Horses will be exhibited on track for inspection of Committees in the following order, commencing at 9.30 A. M. 1. Stallions of Hambertonians and other bloods not included in the following classes: 2. Descendants of the Bulrush Morgan, stallions. 3. Descendants of Woodbury Morgan, stallions. 4. Descendants of Sherman Morgan, stallions. 5. Matched Horses. 6. Foreign Horses. 7. Geldings and Mares. Each class will pass twice around the track, halting the second time in front of the Committee's stand, afterwards be subject to the direction of the Committees.

Brood Mares and Fillies of the first four classes will be collected in divisions at 2 o'clock, for inspection of the Committees.

"Trotting on the course will commence at 4 P. M."

MACHINE FOR PICKING COTTON.—P. W. Porter, of Memphis, Tennessee, has invented a machine that will pick cotton. He says that with his machine, one man, and two horses will pick and gather up, without loss, four acres of cotton per day—about equal to the labor of 30 men.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

BARLEY.

Barley is a spring crop. There are two varieties, one good for its farina and for making barley gruel, the other for the brewery, for the manufacture of malt, to be used in beer. Of this, I would say a few words.

Beer in Bavaria is made entirely of pure malt with hops, but in that which is in so general use in Germany and America, the brewers always employ drugs as a substitute, as the bean of St. Ignatius, a narcotic by which the beer is made stronger and more intoxicating, and also cheaper. The best beer which I ever drank in my life was that of Croatia. It was pure and wholesome, and so thick (essentielle) that if one should pour a few drops upon the table, and should leave a glass standing upon it, on the following day it would be difficult to remove it.

I have made myself acquainted with the process of its manufacture, and I recommend it to farmers as wholesome and nourishing.

A tub, having a double bottom, is placed upon three legs, around which an empty space is left to collect the liquor. Fresh straw is laid upon the external bottom, on which is piled the malt. The vessel is then filled with cold water, and stones, heated in the fire to redness, are placed in this water till it boils. The liquor is then drawn off into another vessel through a cock at the bottom, and after it is sufficiently racked, hops are added, and the mass is cooled. It is then left to ferment. This process being completed, it is poured into a large barrel or hogshead, and forms an excellent drink, which is named by the Croatians *stein bier*, or stone beer.

RYE.—MALT BEER.

Rye is of two sorts, one sown for the winter, the other in the spring. The first is of a smaller kind, and the envelope or the hull is thinner, its farina is white, it is kept more easily. It requires a good soil, clayey, and manured. Spring Rye grows well in sandy soil, but when manured it is larger grained; the hull is thicker, gives less farina, which has a whiter color, although it makes a darker colored bread than that kneaded from the farina of Winter Rye.

Spring Rye is always cultivated in northern countries, as in Russia, in Poland, Sweden, and Denmark. It was not known in France till 1834, when, as I was traveling from Mayenne to Lessy, about twelve miles, and I perceived that it was not cultivated, I made known to M. Dejardin, of whom I have before made mention, that this crop would prove profitable. This gentleman, after listening to my suggestions, prepared the soil, obtained seed from Poland, from the environs of Krasaystof, in the palatinate of Lublin, and upon sandy plains it became profitable in certain years, of which I shall treat in an essay upon leguminous plants. Rye is universally used for bread in the North, Wheat, which is exported from this country, being the food of Southern Europe. Rye is also used in the North in the manufacture of spirits. The best spirits of wine, such as is employed by apothecaries for medicines, is from Rye. In the North, all the best liquors are prepared from it, such as hold the first rank, even in preference to those of France and Southern Europe manufactured from the vine. But the North does not wish to consume all its Rye in the fabrication of spirits, and therefore mixes with this potatoes, and the spirits thus produced are also pure, but have not the same delicate taste, and are less highly prized.

[The two preceding articles were translated from the French manuscript of M. Saniewski, by the editor.]

DWARF PEARS.

The *Country Gentleman* disposes of the question of dwarf pears thus:

"We have repeated and almost constant inquiries in relation to the value of the pear on quince stocks. 'Are dwarf pears going to answer? Are they not a humbug? Are they as good as standards? Would you rather have a tree on pear or quince root?' These are some of the questions that are continually asked; and the conflicting answers that are given do not help to clear up the question.

"Yet it is a very simple one, and very easily understood when cleared of the fog which partial observers and interested persons have thrown around it. To say which is best under all circumstances, would be like attempting to answer the question, 'Do you think the watermelon as good as the strawberry? Shall we not confine ourselves hereafter to the best of these two, and discard the other as a humbug?'

"Dwarf and standard pears are each excellent in their places. The standard pear, as a general rule, grows to be a much larger tree, requires more time, needs more room, ultimately bears more per tree, will endure more neglect, and in most cases live to a greater age. The dwarf will come sooner into bearing, will occupy less space, and will not bear neglect, but requires good cultivation. We are not sure but the last quality is a positive recommendation; for planters certainly need the stimulus of necessity to induce them to take better care of their trees. A standard will indeed grow and bear under ordinary circumstances; but give it the best chance, and the fruit will be so much improved, as sometimes to be scarcely recognized. The dwarf is emphatically the tree for *the garden*, where two hundred may be planted on a quarter acre, instead of but twenty-five standards, and where no difficulty exists in giving them the best soil and treatment. Those who are about occupying new places, may secure for themselves a supply of fruit in two or three years by planting three year dwarfs; and pomologists may get the fruit of new kinds the first or second year.

"One leading reason why some have pronounced dwarfs a failure, is the attempt to raise *too many kinds* on the quince. There are a few sorts that are entirely at home on this stock, and are always seen in a flourishing state, under anything like favorable influences, among which sorts may be mentioned Louise Bonne of Jersey, Duchess of Angouleme, Glout Morceau, and Vicar of Winkfield, trees of which, twenty or thirty years old, are now productive and vigorous, and will probably live to a hundred. Some of these, and especially the Jersey and Winkfield, seem to grow well on almost any kind of quince. But all do best on the French stock, and this only should be used. The Angouleme appears to be the hardiest dwarf under neglect.

We have just examined an orchard of these, about nine years planted, which until the present year, had been almost totally neglected for five or six seasons, and enveloped in weeds and grass, and growing on a hard stony soil. The present season they have been cultivated but not manured, and they all show a thrifty appearance, and are bending under their load of magnificent fruit. The trees are about two and a half to three inches in diameter, and stand erect, although allowed to run up as standards, without pruning. They bore very little while neglected. As a proof of their superior hardiness, all or nearly of all of those originally planted are flourishing, while other dwarfs, interspersed, have nearly all died out from neglect.

"There are several sorts of the pear that usually do well and live long on the quince, if enriched and cultivated annually, but not otherwise."

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE MAMMOTH SUNFLOWER.

We live in a mammoth world, a mammoth age of progress, and we read of mammoth stores, buildings, etc., etc. I beg leave to bring into notice through your pages a mammoth Sunflower. To me it is a particularly old and endeared friend, the companion of my boyish days, the earliest pride of my youth, when I reared it in my own little garden, which I could and did proudly call my own real estate, and from which I had legally the right to forbid all trespassers, and could plan and adapt its cultivation to my own taste and wish.

This child of Flora partakes greatly of aristocratic qualities; not one of your low, creeping, trading productions, which hardly elevate themselves from the dust and dirt of the bed whence they were born. It is lofty in stature, splendid in colors, raising its head high above the children of the soil that surround it, turning its face towards the east, paying its orisons to its great antitype—the great king of the day.

The wise men of Greece gave it the name of Helianthus, literally the flower of the Sun. Its round noble disc is studded with a sort of golden down in the center, while the edges, throwing out its spear-shaped floral leaves, are significant and emblematic of the rays of light emanating from the center of our solar system.

Our mammoth flower which we propose to describe, is among the giants of this class. He stands by the walk in our garden, taking precedence on our right hand, rising to the stature of nine feet and six inches, loaded with blossoms, branching out of his stem to the number of forty; all, lacking four or five, in full bloom. His girth of the stem on the surface of the earth is full nine inches, and he yet stands majestically upright, notwithstanding several furious storms have lowered some compeers around him.

The seed of these plants is more useful than many suppose. It contains a great deal of oil; fowls devour it voraciously, and thrive well upon it. Last fall I threw some heads of it into my pig-sty, and found they were soon eaten by the inmates, and this I intend to be the final disposal of my great Mammoth Western Flower above described. How descriptive of the vanity and termination of all earthly greatness! R. S.

FULTON, WIS.

THE CULTURE OF STRAWBERRIES.

The New-York Horticultural Society, at a recent Conversational Meeting, arrived at the following conclusions in regard to the best method of cultivating strawberries:

"The best soil for the strawberry was stated to be a gravelly loam. The land should be well drained, and to every acre applied twenty bushels of unleached ashes, ten bushels of lime, and two or three pounds of salt. The ground should be well broken up; animal manures should be eschewed; leaf is the best, and this should be carefully spaded in. About the first of July is the best time to set out the plants. In doing this, pains should be taken to have them firmly rooted. The roots should be eighteen inches apart, and the plants a foot apart.

"Sometimes it will be well to allow greater interval, in which case the interstices can be filled up from the growth of the runners. After setting out the plants, throw on a covering of tan-bark an inch or an inch and a half in depth, then water them plentifully, and the moisture will be retained a long time. After cold weather comes on, cover the strawberry beds and the walks with clean straw, throwing over a little brush, or something to keep the straw in its place. In the spring, remove the straw, and make use of some fertilizing agent to give the plants vigor, as sulphate of soda, sulphate of ammonia, or nitrate of potash. Keep the roots out, see that the plants are bountifully watered, and let nothing intervene to disturb or retard their growth till you gather the fruit. The beds should be made over as often as every three years."

GRAFTING BEETS.

At the beginning of September, 1853, Dr. Allan Maclean, of Colchester, an ingenious experimentalist and good physiologist, grafted a young plant of the White Silesian Beet upon a root of Red Beet, and *vice versa*. At the time of the experiment the plants were each about as thick as a straw. A complete junction was effected. There was a slight contraction at the line of junction, much like that formed by "choking" a rocket case; above the line of contraction the plant was absolutely white, below it was absolutely red. Not a trace of blending the two colors could be discovered. By similar experiments on either vegetables and plants, Dr. Maclean had so far assured himself of the perfect independence of scion and stock as to acquire the belief that neither the coloring nor any specific characters of one or the other would or could be altered by their union. The result of the trial wholly confirmed that view, and demonstrated that the White Beet adhered to the Red Beet by mere junction of cellular matter; that of the scion and stock holding together in the first instance, and each afterwards produced its own coloring matter in its own new cells as they formed superficially, the red cells adhering to the white cells while in the nascent state, but retaining each the peculiarity belonging to it, without any interchange of contents through the sides of the cells in contact.

This is entirely consistent with all that has been discovered by the modern physiologists who have applied themselves to a study of the nature of the individual cells of which plants consist. They have clearly shown that each cell has its own special inherent of secretion; as indeed may be seen by any one who examines thin sections of variegated leaves or other parts. It will then be seen that some cells are filled with a red coloring matter, others with yellow, others with green. In other words, one cell has the power of secreting red matter, another yellow, and so on. The colors do not run together, but are contained each within the cell that produces it. Why this is so no one knows; all that we are acquainted with is the fact that in the cells of the Red Beet resides a power of forming red matter, and in those of the White Silesian Beet that of forming yellow; and this peculiarity is not effected by the one growing to the other. Red-forming cells produce their like and yellow-forming theirs. Thus the limit between the scion and its stock is unmistakeably traceable, and notwithstanding the combination of the two sorts in one, each perseveringly retains that which is natural to it.

What is true of Beets is true of all other plants, and we shall endeavor on an early day to apply to the practice of grafting the unquestionable facts above explained.—*Gardener's Chronicle.*

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE TEMPERATURE OF THE SEA AND THE LAWS OF HEAT.

Salmagandi, Ouachita Parish, La., Aug. 25, 1855.

Mr. Editor:—In the *United States Magazine* is an article upon Vesuvius and its late eruptions. It is observed that in descending into some mines the temperature has been found to increase at a regular rate, which at a few thousand feet in depth would be sufficient to melt all substances that are known on the crust of the earth. . . . But this theory seems to be refuted by the ocean, which shows no increase of temperature as we descend into its depths, but rather the contrary. Then it is said, according to the supposed law of increasing temperature, as we descend into the earth, there would be sufficient heat at eight or nine miles from the surface, not only to set the ocean boiling, but to evaporate the whole mass of waters at once. But man with his sounding apparatus has examined the water at that depth, and found it "cool as a cucumber."

I have seen an anecdote of a pupil who, in reciting his lesson, repeated the truism, "heat causes all bodies to expand;" his teacher requesting an instance, said he, "When the weather is hot, the days are long." Whether the elucidation was satisfactory I have never learned. But, as the pupil said in his recitation, heat causes all bodies to expand. That is good reason that the water at the lowest depths of the ocean should be coldest—the more heated, and consequently lighter particles rising to the surface, simply by the force of gravity. In ponds and lakes where the water is still, by sinking a jug a few feet, cool water may be obtained, while the surface, being heated from above, is much warmer.

What is the cause of earthquakes or eruptions of mountains, I cannot pretend to say—the surface is what I am interested in. But were the editor of said publication at a hog-killing, and could see our Southern slaves, (who, by the way, are the happiest people in the country,) put their hands immediately under the bottom of a kettle to pour boiling water out—not particularly to make a display—but because they know from experience that the coldest water is at the bottom and keeps the bottom cool, he probably would not be surprised that the coldest water in the ocean is at the bottom. A kettle of boiling water is an atomical ocean at a high state of temperature. W. M. D.

AMERICAN INSTITUTE.

A special meeting of the American Institute was held on the 17th inst., at the rooms, No. 351 Broadway. Dr. D. M. Reese in the Chair; John W. Chambers, Secretary.

After the reading of the Minutes of the previous meeting, the Committee on the Admission of Members submitted the names of six candidates for members, and they were unanimously elected.

The principal object of the meeting being to hear a report from the Managers in relation to the exhibition to be held next month at the Crystal Palace, Mr. Smith, the Chairman, presented a lengthy report, from which we gather that the applications for space exceed the expectations of the Managers. The principle railroads have agreed to bring articles to the exhibition and return them free of charge. The shafting for the machinery is already in place. Two steam-engines are ready for operation in the Palace.

Among the articles already entered is Dr. Drake's gas engine of 24 horse-power, six or seven entries of gas cooking apparatus, planing machines without number; besides large quantities of the staple productions of our country in iron, wool, and cotton. The machinery department will be filled with ingenious labor-saving machinery.

Quite a spirited debate arose in relation to those Managers who have accepted, and have not come up to the work.

Some of the members insisted that they should forthwith resign and give place to those who are willing to act.

Delegates were appointed to visit the New-York State Fair at Elmira; the New-Jersey State Fair at Camden; the United States Agricultural Show at Boston; the Queens County Fair at Flushing, Long Island; and the Westchester County Fair at Whiteplains, etc.

An appropriation was made to pay current expenses.

After the transaction of some other business, the question arose as to the time of adjournment. Some were in favor of meeting every week to hear the reports of Committees. Gen. Hall moved to adjourn to the regular meeting, as the Managers were continually occupied in the arrangements for the coming Fair. His motion prevailed.

We understand that a Poultry Show will be held the last week of the Fair.

A large number of fire engines were entered, and a test will be had of their power during the Exhibition.

The Agent informed the meeting that, from the applicants for space, he had no doubt but the Palace would be filled.

THE NAUMKEAG MILL, SALEM, MASS.

THIS mill was established eight years ago, and having been planned and constructed upon the wisest principles of economy, and furnished with the best of machinery, and having been managed moreover with careful prudence and good judgment from the beginning, under the direction of Edmund Smith, Esq., it has enjoyed uninterrupted success. During all this time it has, with the exception of a single year, paid regular semi-annual dividends of from three to five per cent.

We have in time past, we believe, published some of the statistics of its operations, but as we are now noticing, briefly, various branches of industry in Salem and vicinity, it may do no harm to state the facts anew.

The mill building is a substantial affair, 400 feet in length by 60 feet in width, and 4 stories in height. It contains six hundred and forty-two looms and thirty-three thousand spindles. This machinery is driven by a splendid steam-engine of four hundred horse power, built in Providence, by Corliss & Nightingale, at a cost of $18,500, besides $13,000 for the boilers. It has been run without the necessity of stopping for the past seven years, and is a model of mechanical beauty.

The mill produces Sheetings, Jeans and Flannels, at the rate of over one hundred thousand yards per week, the quantity annually produced being about five million five hundred and fifty thousand yards of goods. In this manufacture they consume annually three thousand seven hundred bales of cotton. Other chief articles of consumption are, 2000 tons of coal, 3,500 gallons sperm oil, 30 tons potato starch, etc. The mill gives employment to 600 men, women and children, and it pays for labor, *monthly*, *eleven thousand dollars*, all in cash, no orders or equivalents being given.

We may add that the mill and works are lighted by gas manufactured upon the premises, in a neighboring building, at a much less cost than would be incurred for oil, while the light is much safer, and has proved quite satisfactory since its introduction into the mill some three years ago.

The capital of the company paid in is $700,000. The cost has been $720,000.

The safety of the shareholders appears to be wisely guarded by a full insurance on all the buildings and machinery, and on goods of the Corporation in the market, and by a guarantee on all sales of goods by reliable and able factors.

It appears from the last annual report that the product of the mill, for the year ending Nov. 30, 1854, was 5,073,648 yards of cloth.

The general expenses, repairs, etc., amounted to $32,921, and during the year, the engine, shafting, etc., were placed in as good order, for the ten years to come, as they were when first put into operation.

The net earnings of the year, deducting the expenditure above named, amounted to $85,758 06. Deducting from this the amount paid in dividends, and there was a balance to the credit of the company of $30,870 06.

The total amount of surplus then on hand was $174,803 91, or twenty-four dollars and ninety-six cents on each of the 7000 shares issued at that time.

From the foregoing statements the reader can form an idea of the advantages which our city derives from this one mill, and what might be secured were the manufacturing business more extended. Of the hundred and thirty thousand dollars which are annually paid to the operatives, the larger portion is expended in town, to the benefit of our traders, mechanics, etc. The same classes also derive grains from the labor and materials required, incidentally, in the operations of the mill. The dividends also accrue largely to our own citizens, (there being 500 shareholders,) who own a good portion of the stock.

The tendency of a factory establishment like this, to increase the amount and value of real estate, is seen by a glance at the neighborhood of the mill. Ten years ago there was not a more quiet and retired locality in the city, but few buildings having been erected thereabouts. Now it is an animated and populous neighborhood. New streets have been laid out in the rear of the boarding-houses, and buildings are going up steadily upon the remaining lots of land. There are in the vicinity two machine shops, an iron foundry, a ship yard, where a brig of 260 tons is building by Mr. Edward F. Miller, of this city, a marine railway, a candle factory, and several stores. Some of these establishments are to be sure as old as the factory itself, and even older, and we mention them only to show what a busy neighborhood it is.—*Salem Observer.*

GLOUCESTER, MASS.—ITS INDUSTRY.

A CORRESPONDENT of the Boston *Traveller* says that the mackerel fishery for the Gloucester fleet on the north-east coast promises well the present season. About 200 sail are now absent from home. About a dozen have arrived from their first trips within the last fortnight, bringing tolerably good fares; from 150 to 300 barrels. The mackerel, however, pack out small, the market prices are low, and sales dull just now.

The "crafts" fishing along our coast and bay are doing better than they have for some seasons past. Sharks seem to be more plenty this year than ever before; they are very troublesome to the schools of mackerel and the fishermens' nets which are set in the "coves" and along shore. A week since a monster shark made his appearance at Little Good Harbor Beach, near "Salt Island," driving a large school of "Pogies" ashore, and some one hundred or more had to remain on dry land to get clear of their enemy. They soon, however, had to surrender to the fisherman's knife and wash-tub, for mackerel bait.

Notwithstanding the depressed state of the fishing business at Gloucester during some years, the town is on the march of improvement, and is growing up for a "big" city at some future time. New streets and avenues are yearly opened, with neat, large dwellings erected thereon. At least three hundred buildings have been erected in different parts of the town during the past two years. A large and fine church has also been built for the Congregational Society on Middle street. The old Baptist church on Pleasant street has at last fallen into the hands of the Roman Catholics, and they have removed it to a lot of land on Park street. The Baptist society having built a new church, they disposed of the old edifice to private citizens, a few years ago, and it has remained *dead* property ever since. The company at last getting tired of the property, placed it at auction. A small number of persons only attended the sale, and it was knocked off to a Salem gentleman for less than $300, who was present as an agent for the Salem Catholic priest. Several citizens would have purchased the old church and converted it into a dwelling-house if they had been aware that it was to pass into the hands of the Roman Catholics. Five years ago there were but two Irish Catholic families in town; they now number some 500 in Gloucester, Rockland and Lanesville. A number of foreigners have settled in Gloucester from Nova Scotia and the British Provinces.

The authorities of the town are now taking the census. I have been informed by a canvasser that the population will come up to 10,000; an increase since the last census of some 3000. With the floating population, Gloucester has, no doubt, 2000 inhabitants, at the present time.

Uncle Sam has selected a good and central spot of land on the corner of Spring and Pleasant streets to build the new Custom House, Post-Office and Court-house on. The building is to be of brick, fire-proof, large and substantial; to be commenced probably in a month or two. A new Custom-House has long been needed at this large port of entry.

Mr. Hardy has on the stocks at his ship yard, Beach street, a real clipper schooner, of about 60 tons burden, built for the Lynn fishermen who attend the Boston market. Mr. Davis, at East Gloucester, has on the stocks a fine schooner for the fishing business.

Oak Grove Cemetery, lately laid out, (entrance on Washington street,) will be, in time, one of the most delightful burial-places that can be found in the State. The grounds are very tastefully arranged. Lots sell for $75 to $100 at the present time. The Masonic Lodge have erected a neat monument over the grave of the Hon. Wm. Ferson.

A large number of strangers have been making Gloucester their seashore resort this season. A number could not get accommodations, and were obliged to seek other places. It has been quite a drawback to visitors to have both the Pavillion and the Gloucester House closed this summer. They could have both been filled with company, if opened. Let some good, popular landlord lease these hotels, keep them up with the times, and a good, safe, profitable business may be done at both houses.

INDUSTRIAL STATISTICS.

USQUIPAUG, R. I.—*Usquipaug Mills.*—J. B. M. Potter, Agent; Manser C. Shippee, Superintendent; Wm. W. Henry, Foreman. *Cotton* Mill has 18 cards of 18 inches; 1150 spindles, making satinet warp. Woolen mill has 2 sets cards and 24 looms. Make jeans.

ALLENTON, R. I.—*Yawgoo Mill,* woolen.—W. G. Rose, agent; Nicholas R. Gould and others, foremen. Mill has 2 sets cards, 2 jacks, 16 looms. Make jeans; warps purchased.

KINGSTON, R. I.—*Moorsfield Mill,* woolen.—Daniel Rodman, owner; Oscar Gardner, foreman. Mill has 2 sets cards, 2 jacks, 16 looms. Make coarse kerseys; 200,000 yards yearly.

NARRAGANSETT, R. I.—*Steam Mill,* woolen.—Potter & Eaton, owners; B. S. Rose, Superintendent; Benjamin Aldrich, Engineer. Mill has 2 sets cards, 32 looms. Make jeans; warps purchased.

NEW-LONDON, CT.—*Repair Shop of N. L. & W. Palmer, R. R.*—Wm. H. Griggs, master of motion power. Road has 65 miles of trade; send out 4 trains daily; repair and rebuild locomotives; do repairs for Amherst and Belchertown R. R. Wood-shop has C. M. Hutch, foreman. Forge-shop has John W. Rose, Foreman; P. B. Hovey and others, engineers.

MONTVILLE, CT.—*Rockland Mill*, woolen, has 30 looms. Make Satinets.

Cordage Mill, E. H. Palmer.—Make 250 lbs. cords daily. Make bed-cords, plough and clothes-lines, coil-rope, etc.

Cotton Rope Mill.—Wm. L. Allen, Superintendent. Turns out 250 lbs. daily.

UNCASVILLE, CT.—*Uncasville, Mang. Co.*—1 mill, cotton. W. R. Wood, manager; Ira Dimock, Machinist. Mill has 36 cards, 36 inches wide; 3697 spindles, 120 looms. Make stripes, dereims, ticking, etc., of yarn No. 13.

NORWICH, CT.—*Repair Shop* of Norwich and Worcester Railroad. R. Colburn, Master of power-shop, has 4 lathes and other tools. Send out 2 passenger, 2 steamboat, and 3 freight trains daily. Road has 66 miles track. Wood-shop has 20 hands, and G. R. Bentley, foreman. Forge-shop has 5 fires, one furnace, and T. H. Pollard, foreman.

Machine Shop of Peleg Rose & Co., owners; L. H. Ellsworth, foreman. Shop has 20 lathes and other tools in proportion. Foundry attached, A. H. Vaughn, foreman, has 20 hands on average. Make paper-mill machinery, steam engines, shafting, and do job work.

GREENVILLE, CT.—*Clark's Mill*, cotton.—W. F. Clark, agent; Blanchard, superintendent; D. Morrill, foreman. Mill has 36 cards of 18 inches; 2044 spindles, 56 looms. Cloth is 30 inches wide, 48 by 52, of yarn Nos. 16 and 19.

Machine Shop of J. S. & S. J. Mowrey, owners. John A. Bennett, Foreman. Shop employs 80 hands. Forge shop has 18 fires. Make axles, springs, steam engines, paper-mill machinery, also Salisbury iron for axles, and best English steel for springs, supplying many of the best carriage makers with these superior articles.

Bliss Mill.—W. Bliss, Agent. Mill has 800 spindles. Make satinet warps.

Paper Mill, Chelsea Mang. Co.—J. D. Mowry, agent. James Lindsay, Superintendent. Mill has 28 engines, running night and day, six machines. Make all qualities from finest book to newspaper. Employ 180 hands.

GAS WORKS—*Norwich Joint Stock Co.*—Works have 12 crucibles set. Make superior gas. Charles F. Stacy, gas-fitter, connected with the Company.

JEWETT CITY, CT.—*Jewett City Mill*, J. A. Slater, agent; Burlson, superintendent. Mill has 2856 ring and 2664 mule spindles; 210 looms. Make 20 different kinds of denims, stripes, ticking, etc.

Ashland Mill, Cotton.—N. D. Adams, Agent; Wm. Randall, superintendent; Linnæus Wild and others, foremen. Thomas L. Young, repairer. Mill has 10 cards of 36 inches; 1200 by 1000 spindles, 66 looms. Cloth 36 inches. 52x60 ; yarn, Nos. 28 and 30.

Hopeville Mill, woolen.—Henry Lathrop, agent; Cyrus Titus, superintendent. Mill has 4 sets cards, 40 looms. Warps made on the premises. Make satinets.

PACKERSVILLE, CT.—*Packer's Mill*, cotton. S. A. Packer, agent; Stephen Cole, foreman. Mill has 1700 spindles, 52 looms. Make drillings and diapers.

YANTIC, CT.—*Yantic Mill*, woolen. E. W. Williams, agent; D. L. Huntington, Superintendent; Wm. H. Wise, H. H. Hart, E. F. Yarrington, and

Eli Cory, foremen. Mill has machinery to turn out 2000 yards flannel daily.

Fitchville, Ct.—*Fitch Mill*, cotton. A. Fitch, agent; J. W. Thompson, superintendent; Clark Reynolds, repairer. Mill has 48 cards, 30 inches; 5130 spindles, 160 looms. Cloth 30 and 36 inches, 64x48, yarn 15.

Daysville, Ct.—*Daniel's Mill*, cotton. D. A. Daniels, agent, J. A. Daniels, superintendent. Mill has 13 cards, 30 inches; 2100 spindles, 58 looms. Cloth 28 inches; 60x68, yarn 29.

Fisherville, Ct.—*Masonville Mills*, 3, cotton. Dr. Wm. Grovesenor, agent; Lucius Briggs, superintendent and agent; E. B. Anderson, Lewis Wade, Thomas Williams, George T. Seaver and others, foremen. Mills have 10,000 spindles, 51 cards 30 inch, 200 looms. Cloth is 38 and 39 wide, 78x108, yards 35 and 38.

Thompson, Ct.—*Quaddick Mill*, cotton. H. S. Bartlett, agent; Lucian Randall, Daniel Peck, foremen. Mill has 1650 spindles, 38 looms. Cloth 28 inches, 60x60, yarn 29.

Putnam, Ct.—*Wilkinson Mill*, cotton. Edward Wilkinson, agent. Mill has 11 cards of 36 inches, 2350 spindles, 60 looms. Cloth 36 inches, 52x 52, of yarn 18.

Morse's Mill, cotton. M. S. Morse, agent; S. Nichols, superintendent; Albert Knight, David T. Spencer, Israel Kibbee, overseers. Mill has 48 cards 30 inch, 8588 spindles, 200 looms. Cloth 36 and 38 inches, 72x72; yarn 30.

Ballow Mill.—H. Ballow, owner; E. A. Cutler, superintendent; Zadock Wills, John D. Wills, foremen. Mill has 62 cards, 24 inch, 9000 spindles, 250 looms; cloth 28 inches; 60x64, yarn 28.

Rhodesville Mill, cotton. J. P. Bailey, agent. Mill has 24 cards of 28 inches, 100 looms. Cloth 28 inches, 64x72, yarn 30.

East Woodstock, Ct.—*Smith's Mill*, cotton. G. P. Smith, agent; Reuben Gage, overseer. Mill has 1250 spindles, 36 looms. Cloth is 28 inches. 50x 52, yarn 25.

New-Boston, Ct.—*New-Boston Mill*, cotton. Billings and Upham, agents; A. J. Davis and J. B. Bulbitt, foremen. Mill has 18 cards of 18 inches, 20 looms. Cloth 28, 60x60, yarn 28 and 30.

Willimantic, Ct.—*Duck Mill.* Wm. L. Jillson, agent. Mill has 12 double cards, 1300 spindles. Make duck and bags.

Willimantic Linen Co., 1 mill.—E. Johnson, agent; Charles S. Bliven, superintendent; Robert Dungan, Joseph Rollinson, Henry M. Hinde, L. W. Spencer and others, foremen. Mill turns out 4000 yards crash, and 200lbs. shoe-thread, and 200lbs. twine daily.

Paper Mill.—L. & W. Page has 6 engines running day and night; make printing paper. In this place three mills, cotton; not running when these statistics were collected.

Hop River Mill, cotton. Moses B. Harvey, agent; Wm. B. Hawkins, superintendent. Has two dressing frames; make satinet warps.

Wells Co., 1 mill, cotton. John H. Capen, agent. Mill has 12 cards 36 inches. Make satinet warps, colored and plain.

North Windham, Ct.—*Lincoln's Mill*, woolen. Stowel Lincoln, owner. Mill has 1 set cards, 1 jack, 5 looms, 1 bag-loom. Make felting cloths for paper hangers and calico printers. Turn out 100lbs. daily.

Matchany Mill, cotton. L. D. Spencer, superintendent; Ithel E. Town, foreman. Mill has 16 cards 36 inches. Make satinet warps.

Mansfield Center, Ct.—*Bobbin Factory* of George F. Swift; employ 6 men on average, and make bobbins, jack and all kinds of spools.

Machine-Shop of N. Rexford; E. S. Capen foreman, has 10 lathes and other tools. Make machinery for silk mills and do jobbing.

Machine-Shop of Orlow Atwood, has 4 lathes and other tools. Make silk machinery and do job work.

South Coventry, Ct.—*Washington Mill*, woolen. N. Kingsbury & Co., agents; G. W. Capron, superintendent; James Soules, A. B. Boardman, overseers. Mill has 3 sets, 26 looms. Make satinets, warps purchased.

Coventry Depot, Ct.—*Woolen Mill*, H. R. Fargo, agent; Joel L. Ladd, Charles C. Bennett, foremen. Mill has 3 sets cards and 24 looms. Make satinets—warps purchased.

Eagleville Ct.—*Eagle Co.*, 1 mill, cotton; E. B. Hibbard, agent. Mill has 18 cards 18 inches, 2000 spindles, 44 looms; make 30 inch drills.

Merrow, Ct.—*Stockinett Mill*, woolen. Pitkin, Merrow & Co., agents. Andrew Webster, E. C. Otis, foremen. Mill has 3 sets cards; make stockings, shirts, drawers etc.

West-Willington, Ct.—*Willington Thread Co.*, 1 mill; Origin Hall, agent. Mill has 4 cards 30 inches. Much yarn purchased of B. Greene. Make sewing thread, Johnson's patent finish, superior article.

Stafford Springs, Ct.—*Mineral Springs, Mang. Co.*, 1 mill, woolen. J. Converse, agent; C. W. Eaton, Geo. B. Grant, foremen. Mill has 3 sets cards, 30 looms on satinets. Warps purchased.

Converseville Co., 1 mill, woolen. P. Converse, agent; Franscis Hyde, Patrick Powers and others, foremen. Mill has 3 sets cards and 30 looms on satinets. Warps purchased.

Granite Mill Co.—1 mill, cotton; G. M. Ives, agent. Mill has 20 cards 36 inches, 5000 spindles, 121 looms. Cloth 28 inches, 60x64, of yarn 28.

Orcuttville Co.—1 mill woolen; R. G. Pinney, agent; Henry Orcutt, superintendent; Alonzo L. Eaton, Orrin L. Fletcher, overseers. Mill has 2 sets cards, 18 looms. Make heavy satinets. Warps are purchased.

West Stafford, Ct.—*West-Stafford Linen Co.*, 1 mill; A. W. Case agent; C. J. Holmes, superintendent. Mill turns out 1800lbs. shoe-thread weekly.

Stockinett Factory of Samuel Fitch, has 6 rotary machines and makes webbing for rubber works.

Machine-Shop of S. Fairman, has 3 lathes and other tools. Make patent universal chucks.

Machine-Shop of J. W. Fairman & Co., has 3 lathes and other tools. Make Fairman's patent scroll chuck.

Machine Shop of Washburn & Whiton, has 8 lathes, 2 lances, and other tools. Make scroll chucks, elevators, planers, and do job work.

Stafford Ct.—*Woolen Mill* by Converse & Hyde; E. W. Daniels, superintendent; F. N. Andrews, Lewis Putney & others, foremen. Mill has 2 sets, 20 looms. Make satinets; warps purchased.

Valley Co., 1 mill, cotton; Moses B. Haney, agent. Mill has 14 cards 18 inches, 800 dead fancy spindles. Make satinet warps, 1800 threads, No. 18 yarn; 9600 weekly.

Machine-Shop of Charles Holt. Shop has 6 lathes and other tools. Make finishing machinery for woolen mills.

Hydeville, Mang. Co., 1 mill, woolen; Elijah Fairman, agent; James Risley, superintendent; Ashley D. Studley, E. H. Risley, Frank G. Fairfield, foremen. Mill has 3 sets cards, 24 looms. Make satinets, fancy and plain; warps purchased.

Staffordville, Ct.—*Machine-Shop* of Howe & Converse; Falkner, superintendent. Shop has 14 lathes and other tools in proportion. Make looms, fulling-mills, and do job work. Make Talbet's improved loom.

Staffordville, Manf. Co., 1 mill, woolen; E. A. Converse, agent; Charles A. Tainter and others, foremen. Mill has 3 sets cards and 28 looms, on satinets; warps purchased.

Hope Co., 1 mill, woolen; E. A. Converse, agent. Mill has 3 sets, 26 looms. Make satinets; warps purchased.

Converse Brothers.—Mill woolen; E. A. Converse, agent; Jos. H. Converse, superintendent; Stillman Ellis and others, foremen. Mill has 2 sets, 20 looms. Make fine satinets. Warps purchased.

HARVEY'S DEAD SPINDLE.

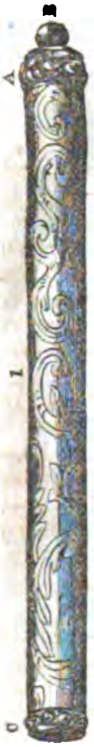
The spindle of Mr. Moses B. Harvey, of Stafford, Ct., differs from any heretofore introduced among cotton spinners. It is a short spindle, costing fifty cents less per spindle in a frame than the live spindle costs. A warve is fitted to the spindle revolving around it. Projecting from the upper end of the warve is a tube, which, entering the base of the bobbin, gives motion to the bobbin in part, the other part being secured by a pin in the base of the bobbin, suited to, and entering into, a hole in the upper plain of the warve. Motion is communicated to the warve, and thus to the bobbin, in the same way as it is given on a frame of live spindles.

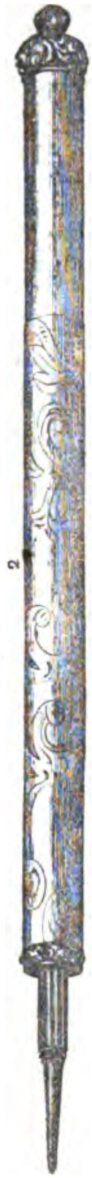
One advantage of the Harvey spindle over the common one is, that it requires much less power to run it; and another is, that it will do more work, because capable of being run at greater speed. These advantages, added to the fact that a frame costs fifty cents less per spindle than other frames cost, are powerful recommendations of this spindle over other ring spinning. In the mill of the Valley Co., Stafford, Ct., are several frames of Harvey spindles running with perfect success. The general introduction of this mode of cotton spinning will be a general gain to all manufactories.

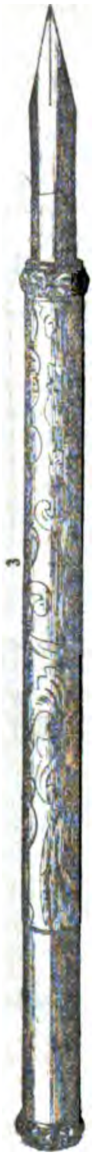
IMPROVED FLOCK CUTTER.

The knives upon the improved Cutter of Mr. Charles Holt, in Stafford, Ct., are sixteen in number, and are spiral around the shaft to which they are fastened. Each knife winds round one-fourth of the shaft, and hence four knives are constantly engaged in cutting. The outer cylinder is made to turn slowly, and bring the flock into contact with the knives. This outer cylinder, and also the frame-work of the machine, are made of iron. Thus, in looks and in operation, Mr. Holt's improvements are obvious and of substantial value, being capable of doing much work, and of doing that work well.

LOWND'S PATENT PEN AND PENCIL CASES.







These cuts represent the outside appearance of a newly-patented and very useful article in the way of pen and pencil. Fig. 1, the case closed up portable and convenient for the pocket. Fig. 2, the pencil, and fig. 3, the pen, ready for use.

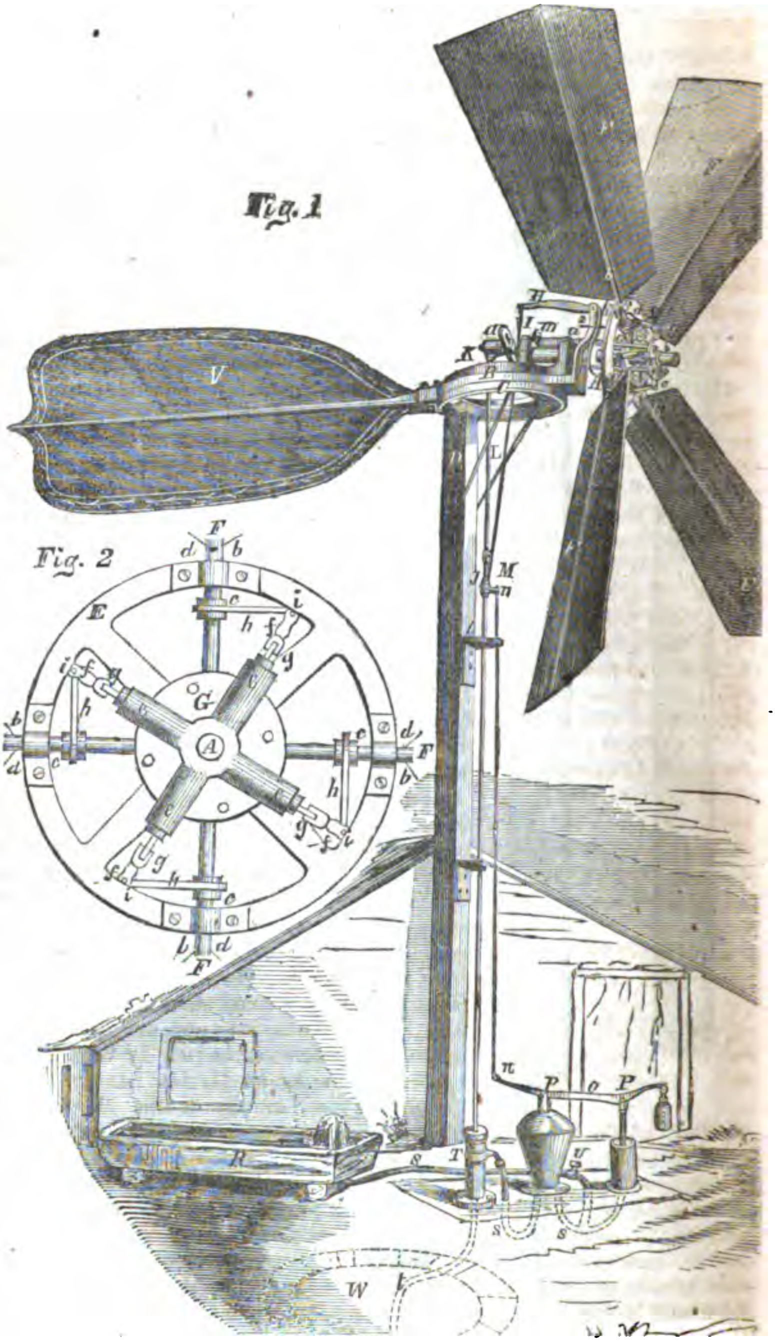
By examining the internal arrangement of No. 1, we find therein a stationary slotted tube within which is the pencil tube, outside of which, between it and the case, is the pen and pen-holder, all so arranged that they operate without interfering with each other, and the whole made much stronger and more durable than when both pen and pencil are at the same end.

What is claimed as new and secured by letters patent is the slotted tubes, the pencil tube and the pen-holder, arranged and connected as set forth in the letters patent. To operate: Pull out the chased tip A with the right hand, turn it to the right, and push it back to its place, this will leave the pen out; then pull out the tip C, and it is as long as an ordinary extension case. The pencil is thrown out in the same manner as the pen, by turning and pushing back the tip C. Close the case by extending the inside barrels and reversing the movements. The ball B unscrews and reveals a small chamber for leads.

These pens and pencils are manufactured exclusively by Wm. M. Willmarth, 44 Maiden Lane. Mr. W. was formerly of the old firm, and chief manager of the house of Addison, Willmarth & Co., which is sufficient guarantee for the workmanship of whatever comes from his hands.

Fig. 1

Fig. 2



HALLADAY'S WIND-ENGINE.

ON another page the reader will see a picture of a Wind-Engine, which is now gaining popular knowledge and favor, lately patented by Mr. Halladay, of South Coventry, Ct. A company has been formed for the manufacture of this Engine, called the HALLADAY WIND-MILL Co., having a large shop in the place above mentioned. The mills are constructed of different sizes to suit the wants of purchasers, or rather to give any desired amount of power, varying in prices according to size, from $75 to $275 each. We have seen one, yet standing at the factory, of four horse power, furnished with a regulator to equalize its speed, such as is in common use in cotton mills to regulate the speed of breast wheels. The cost per horse power for a wind-mill is about the same as the cost per horse power of a steam engine.

The patent of Mr. Halladay has reference to the mode of regulating the speed of the engine. It is by a device peculiar, ingenious, and simple, that the wings of the engine are gradually turned around so as to change the angle of the fan in the face of the breeze, making the plane of the wing now nearly parallel with the line of the storm, as the storm or wind increases, and in the same proportion diminishing the speed. An inspection of fig. 2 will show how this motion is given to the wings. F F are the stems to the wings. G is an aparatus, around the cylinder, into which the wings are inserted. This aparatus, G, by a bar, H, turns the stem of the wings, so as to bring the plane of the wings at any angle with the line of the wind. When the wind is strongest and speed begins to increase, the fixture, G, is changed, and hence the angle is changed. The engine of the cut is working a pump. The regulator, giving motion to G, is found in the orifice of the water pipe. Any other regulator can be used to give the proper motion to G. We wish it to be distinctly understood that the peculiarity of this engine is found in its aparatus to regulate its speed. The great reason why wind power has been so little used heretofore is, that the power was irregular and uncontrollable. When the wind was high, the engine was straining, and cracking, and breaking. When the engine was suited to a strong wind, it ceased to work at the instant the wind lulled. Because of this variableness and inconstancy, wind power has been but little used. Along on the sea-shore, where water power could not possibly be had, efforts have been made to apply wind power to the grinding of meal. Yet these mills have always been abandoned the moment more regular power could be secured from the water. But wind power can always be had just where we want it, which is not the case with water power. Wind power is also both cheaper and safer than steam power. A wind engine uses up no cash to keep it going as steam does. When the difficulties referred to are overcome, wind power will be used every where. To do his *pumping*, and *threshing*, and *sawing wood*, *churning*, and so forth and so forth, every farmer wants a small power, such as can be economically secured by the Wind Engine. And the blacksmith, and wheelwright, and carpenter, etc., etc., wants one or more horse power in his business, cheap and durable, as is given by the Wind Engine. The Company owning this patent, are receiving large orders at their factory, and they are prepared to fill them reasonably and rapidly. The American mind is not slow in detecting advantages which may be offered by new inventions, and it will soon clearly ascertain how Mr. Halladay's invention can be used to advantage.

AMES' UNIVERSAL SQUARE.

The annexed engravings represent a "Universal Square," for which a patent was granted to Nathan Ames, of Saugus, Mass., July, 1852, but which has not been brought before the public till very recently. This square is simple, and combines in a convenient form five useful instruments, viz., the "Try-square," the "Miter," the "T-square," the "Graduated Rule," and the "Center-square," for finding the center of a circle.

Fig. 1 is a perspective view of the instrument; fig. 2 shows the method in which it is applied as a center-square for centering a circle; fig. 3 shows the different ways in which it is applied as a miter, and fig. 4 shows the application of the instrument as a T-square, a try-square, and a graduated rule.

In the Patent Office Report for 1852–3 is the following description of the instrument, and its application as a center-square:

"The general principle on which the instrument is based is well known to geometricians, viz., that if two tangents (or straight lines touching the circumference of a circle) be extended till they intersect each other, a straight line bisecting the angle between them will pass through the center of the circle. The instrument consists of two arms, A B and A E, fig. 1, placed together at right angles to each other, in the manner of a carpenter's square, but of equal thickness, and having their surfaces 'flush,' upon the upper surface of which arms a straight ruler, D A, is fixed at its end in such a manner as to have one of its edges at the inner angular point of the arms, and that edge extending midway between them, or bisecting the angle between them. The ruler can be braced firmly by a bar, B E, running across between the extreme ends.

"If the mechanic wishes to find the center of a circular wheel, he places the instrument upon it, fig. 2, with the two arms both resting against its circumference, in which position the edge of the ruler will run across its center. A straight line is marked in this position, and the instrument is again applied to another part of the circumference, so as to mark in the same manner another line intersecting the first. The point of intersection is, of course, the center of the wheel. The whole is the work of a moment."

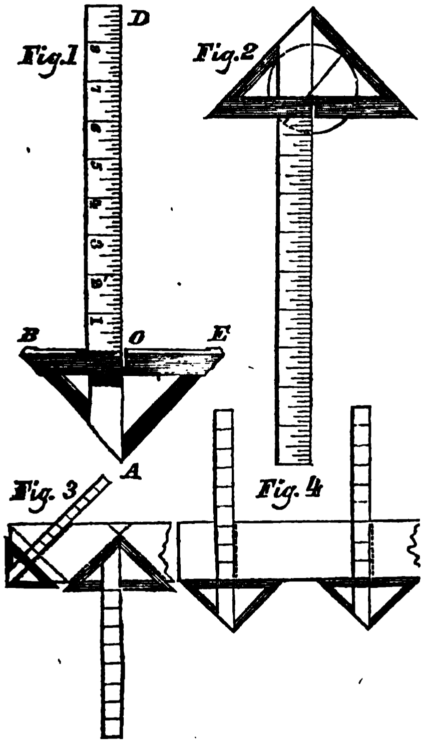
The first claim of the patent is for the application to an instrument of the geometrical principle alluded to above; and the second for the union of the above with the common trying square by means of the bar, B E.

At O, fig. 1, is a slot in the bar, B E, to admit a scratch-awl, or the point of a knife. This slot is also cut out in such a manner on the under side, that the point of the marking instrument may pass under the bar, making a continuous mark, whenever it is desirable, from D to A.

As a center-square, alone, the instrument is invaluable to every mechanic.

A glance at fig. 3 will explain the different ways in which the square may be used as a miter. Simply placing the instrument over a square corner to be mitered (as seen at the left of the figure,) without any adjusting by the eye, is sufficient; the tongue cannot fail to bisect the angle. By mitering both corners, the longitudinal center may also be readily found, the point where the two lines intersect being equidistant from the two edges. The point where the tongue leaves the edge of the board will also be found to be just the width of the board from the end.

Or, again, as seen at the right of fig. 3, there are two miters more. The cross bar, B E, fig. 1, resting against the edge of the board, the two sides of the square, B A and A E, will both be miters.



The application of the instrument as a graduated rule, T-square, and try-square, will be easily understood by inspecting fig. 4.

As a T-square, it is peculiarly strong, and free from liability of getting out of true. The tongue, D A, being fastened, as it is, into the triangular frame, B A E, cannot be moved or knocked from its place. The same remark, of course, will also hold in regard to the instrument both as a miter and try-square.

It is also obvious that there are other ways than those represented in fig. 4 in which it may be applied as a try-square. That portion of the tongue between D and O, with either half of the cross-bar, B E, forms a complete carpenter's try-square, and may be used as a substitute for it in every instance. The outside of the frame—the angle, B A E—is also a perfect square, and often very convenient. In short, it combines, in a most convenient form, so many useful instruments, no mechanic's list of tools can well be complete without a Universal Square.

We believe this to be a capital invention of great practical utility.

More information in regard to the instrument may be obtained by letter addressed to the patentee.

COUPLING GEAR FOR RAILWAY CARRIAGES.

By MESSRS. TAYLOR & CRANSTOUN, *Morayshire Railway*, *Elgin.*

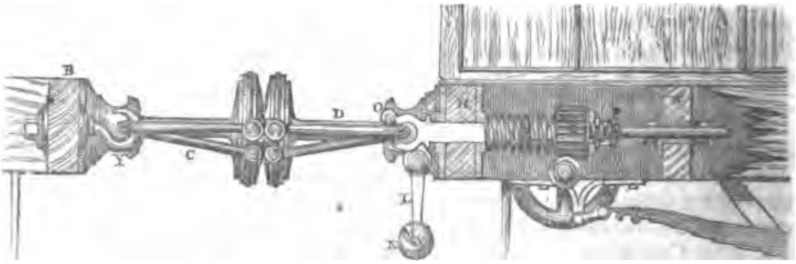
TRAVELERS by railway must have frequently observed—with some annoyance at the delay thus caused—the process of coupling and uncoupling the carriages; and will, doubtless, have remarked the risk of accident incurred by the necessity of the attendants passing between the carriages to perform the operation. The improved coupling gear introduced by Messrs Taylor & Cranstoun, is especially designed to obviate all such accidents, by doing away with the necessity of having to pass between the carriages or wagons when coupling or uncoupling them; whilst, at the same time, such operations may be accomplished by means of this gear with much greater facility and speed than by the existing systems.

Each carriage or wagon, in addition to draw-hooks, has attached to it three parallel-jointed engaging chain-links, freely hinged, so as to be capable of being raised or lowered at pleasure. These links are made with a central back stop-joint, in such manner, that whilst they will act with all necessary flexibility when drawing or being shifted in certain directions, yet, when lifted by the elevating lever, they will rise in a rigid condition, as if solid. Such draw-links may either be disposed in sets of three at each end of the carriage or wagon, or they may be at one end only, with corresponding draw-hooks at the opposite end of the carriage or wagon framing. A transverse coupling or elevating shaft is disposed in bearings beneath each set of links —this shaft having upon it a lever frame-piece, with stud projections thereon, for the purpose of giving the lift to the links. Each end of the shaft carries a hand lever conveniently disposed for the hand of the attendant, so that when passing along the train he can quickly lift or lower the links, holding pins being provided for setting the levers at the required point.

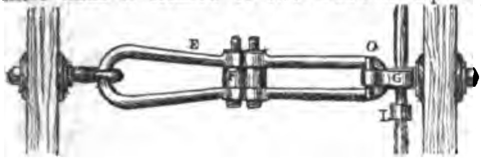
When the wagons are to be coupled, they are placed together in the usual manner; the attendant then passes along either side of the train, and removes the holding-pin (which supports the links sufficiently high to clear the three corresponding hooks on the next wagon ;) the links then drop, and the necessary engagement is thus instantly effected. When the wagons are to be uncoupled, the attendant lifts the links clear off the hooks by simply pressing down the hand-lever, and either allows the links to drop to a vertical position when the wagon is removed, or, by inserting the holding-pin, the links are fixed in a position for coupling when the wagons are brought together, which can instantly be effected by the removal of the holding-pin, as already described. The action of uncoupling, thus places the links in position for coupling whenever the wagons are brought together.

The carriages are coupled or uncoupled in the same manner as the wagons, with the exception that the center or draw-link requires to be tightened up after the carriages are coupled, to bring them closely together, and slackened off sufficiently when they are to be uncoupled. To effect this, a transverse hand-wheel shaft is fitted upon the carriage frame; the center of this shaft having upon it a worm gearing with a worm-wheel set on a longitudinal nut-link of the draw-hook spindle. Hence, by turning one or the other of hand-wheels, the draw-link is tightened or slackened as required. This gearing may be modified in various ways; for instance, the worm-wheel may itself be made to answer as the tightening nut.

The details of this improvement will be better understood by reference to the following engravings. Fig. 1, is a side elevation of the ends of a railway carriage, with the coupling gear attached. Y is the coupling of one car to that adjoining, the ends of which are represented at B and H. There are three inner engaging links, side by side, fig. 1 exhibiting the side view



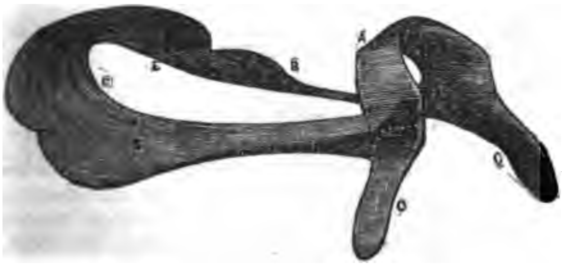
of the outer one, while fig. 2 represents the appearance of the inner one as viewed by looking down upon it from the platform of the car. Each of these links is formed of two horse shoe pieces, E, connected by short joint links, T, in fig. 2, and by pins passing through the links at F, through eyes formed in the ends of the horse-shoe pieces. The outside engaging links, C, are connected with the framing of the carriage by passing through eyes in staple link, H, fig. 1, bolted to the frame. Immediately below the links, C, E, etc., is a shaft, seen at L in fig. 2, the end of which appears above L in fig. 1, bolted transversely to the frame. On this shaft, as at L, in fig. 2, levers are fixed to play underneath the links, but not here shown. These levers, with the shaft, are moved by a crank-handle, as at L, fig. 1, so as to elevate or depress the links, as may be required, to hook or unhook the links, as at C in fig. 1, and E in fig. 2, to the adjoining car.



SADDLETREES.

George M'Naught, *Glasgow.—Patent dated September* 23, 1854.

By the process adopted by Mr. M'Naught in the manufacture of saddletrees, increased strength is secured, together with economy in the material used, and in the labor required in making such articles.



Our engraving is a side elevation in perspective of a saddle-tree, as made according to this system, and covered or canvassed in the usual manner. The portions of the saddle-tree to which the invention more especially refers, are the semicircular or curved head piece, A, and the two twisted side bars, B. According to the ordinary system of making saddletrees, the head is generally made in two portions, each portion being in one piece with one of the downward projecting side pieces, C. These two portions of the head piece are each shaped out of solid pieces of wood, by splitting, chopping, and cutting away the superfluous portions of the wood, to bring it to the proper form. According to this mode of proceeding, a considerable portion of the material is cut to waste, and the labor required is excessive. Now, the portion of this invention relating to the head of the saddle tree, consists in forming the semicircular part, A, out of a piece of wood, which is first cut to the necessary thickness in a flat state, and then, after being steamed, or otherwise prepared, is bent to the required semicircular or curved form, by means of screw presses or other suitable machinery, such as is used in other manufactures for bending wood with the aid of steam. Or, instead of forming the head piece, A, of a single piece of wood of the full thickness required, it may be composed of two or more thin pieces, bent and glued, or otherwise attached or bound together, to give the required thickness. Similarly, whilst the side bars, B, are brought into the required form, according to the ordinary system of manufacture, by cutting away portions of the wood so as to give them a twisted shape,—under the improved system they are first cut to the necessary thickness in the flat state, being afterwards twisted by means of suitable machinery, after being steamed or otherwise prepared, so as to bring them to the twisted shape required in the construction of the saddle-tree, as indicated in the figure. The back, D, of the saddle tree is made in the usual manner, and the several pieces, A, B, C, D, being glued or otherwise connected or joined together, the corners, E, are filled up with separate pieces, so as to economize the width of the wood, out of which the side bars, B, are formed, and filling-up pieces are fitted in the usual way, on the inside of the pieces, A and C. The saddletree is finished externally in the usual manner, by being covered with coarse canvass, and washed with glue, or otherwise prepared. We have thus far only referred to the manufacture of saddletrees for the ordinary description of men's riding saddles; but it will be obvious that the invention, or a part of it, is equally applicable to the manufacture of other varieties of saddletrees. Thus, for example, the side bars of saddletrees for ladies' or side saddles, as also those of saddletrees for military saddles, may be made according to the improved system of manufacture, as already described.

American Patents.

FLOCK RENOVATOR.

An ingenious machine has recently been constructed by Mr. Charles Holt, of Stafford, Ct., for renovating the flocks used in the manufacture of woolen goods. It consists of a cylinder, fourteen inches long and twelve in diameter, covered with cast-iron plates, on the outer surface of which are small conical teeth, one half inch in length. This cylinder revolves about 200 turns per minute, in juxtaposition to an apron of iron, between which and the rotating cylinder the flocks pass, and from which they fall. While falling, they are pervaded by a strong tide of air from a blower, which runs about 800 turns per minute. By the wind of the blower the flocks are carried out through a prepared orifice, while other more ponderous and foreign matters fall under the machine. In this manner the flocks are renovated. The machine is made of iron, and costs about fifty dollars. It is simple in construction, occupies but little space, and is not easily put out of order. It is used by many manufacturers around Stafford, and is highly valued by them. It cannot fail to become greatly popular among those who use flocks in making woolen cloths, to whose inspection we cheerfully commend the machine.

ARTHUR'S PATENT SELF-SEALING CANS.

These cans, invented by Dr. Arthur, of Philadelphia, are much the most convenient article for putting up all kinds of fruits that we have seen.

They are constructed with a channel around the can near the top—which is filled with adhesive cement that softens sufficiently to admit the cover when the fruit is put in hot; or the cover may be heated and passed into it, and warming the can will allow the cover to be taken off without injury. They have been well tested, and being manufactured with the cement in the channel ready for use, the process of hermetical sealing becomes simple and within the reach of all good housewives. The process of sealing and unsealing these cans is very simple, and as the lid covers the whole top of the can, it can be cleaned and used again.

Guano Sprinkler.—The machine bearing this name has been constructed by Mr. Ira Dimock, a machinist and farmer, in Uncasville, Ct., and while it meets a want felt by the farmer and gardener, it also shows much ingenuity in the builder. The plan of the sprinkler is suggested in the common city watering cart. A cask having one head, and being the size of a common barrel, is fastened head downwards upon a pair of wheels, which are united to an axle as long as the distance between two rows of corn. From the lower end of this cask projects a pipe made of tin outward and faced backwards, about four inches in diameter, and about twelve inches in length. Across the end of this tin pipe another is placed, about four feet long, also made of tin, having a line on its under surface thickly perforated with small holes. A gate is made to fit over that end of the shorter pipe which is inserted in the barrel, by which the contents of the barrel are shut out from the pipes, or by raising which the contents are admitted to the pipes, and thus sprinkled upon the garden. When using the sprinkler, Mr. Dimock mixes the guano in the water, with which the barrel is filled, in due proportion. Then he trundles the machine out into his field, and pushing it forward at a chosen speed, and opening the gate at the lower end of the barrel, the guano, in proper quantities and equally, is placed upon the ground and becomes mixed with the soil. No patent has been applied for on any part of the sprinkler.

Percussian Water-Wheel.—A water-wheel bearing the name of Percussion and Reäction water-wheel, has been constructed by Messrs. Fairman, Cushman & Co., of West-Stafford, Ct. A wheel built after their patent is now in operation near their premises, and larger wheels than the one in use are in process of construction. The inventors claim that thus far in their labors they have gained many advantages over the Turbine, and they anticipate greater advantage from future experiments and improvements. These advantages have reference primarily to economy of power, and then, as a secondary end, economy of space. Many persons of experience in using and building iron water-wheels, speak of the Percussion as being greatly superior to any wheel within the limit of their acquaintance. Time will test the correctness of their opinions.

FELLY-SAWING.—A great improvement in the mode of sawing fellies has lately been made by Mr. J. Knap, who is connected with the celebrated carriage and axle factory of Messrs. Mowry & Co., Greenville, Ct. The improvement consists, in part, of having two saws, standing in such position that one saws the inner and the other the outer edge of a felly at the same time. The other and most important improvement consists in making the platform, upon which the plank to be sawed is placed, rotary; and in making its outer edge to rotate in a circle, exactly answering to the circumference of a wheel. The plank to be used is fastened by a simple screw-clamp upon the platform, which by the sawer is made to move against the teeth of the saw, and with a circular motion. A central fastening to the platform is easily made, so as to guide its motions exactly, and so as to be comparatively free from friction. The whole improvement is very simple and economical, and it is easily applied and worked. The work turned out is almost exactly fitted for the spoke. Mr. Knapp has been very successful in his improved felly-saw.

IMPROVED WATER-WHEELS.—That veteran inventor, Simon Fairman, Esq., of West-Stafford, Ct., is engaged in making improvements on water-wheels. No improvement is matured sufficiently to make it public, and no one will come up to the satisfaction of the inventor, which will not come up near to the giving of cent per cent of the water. The aim is high, though it will not probably be fully attained; but talent and genius, both of which he possesses in a remarkable degree, will do their utmost in this direction, and we may quietly wait for very important results.

English Patents.

AN IMPROVED CEMENT APPLICABLE AS A PLASTER, OR FOR MOULDING PURPOSES.—This invention has for its object the production from chalk or limestone of a cement or plaster, which will set somewhat after the manner of plaster of Paris, but will attain a much greater degree of hardness, and, when manipulation is required, will allow more time to the operator to work to a surface, and, moreover, will not be liable to injury from damp or rain.

The improved process for the manufacture of cement consists in subjecting limestone to a further heating in contact with the products of combustion of coal, coke, and substances of a like nature.

In carrying out his invention the patentee proceeds in the following manner:—The chalk or limestone is first burnt in a kiln, to produce quick-lime, by any of the methods ordinarily practised; after which, the quick-lime is subjected to a second heating, at a dull red heat, in the presence of an atmosphere created by the combustion of carbonaceous fuel.

A convenient mode of doing this is to make use of a kiln of a reverberatory form, with the fuel arranged on bars at its bottom, and the previously calcined quick-lime placed at a short distance from it; this distance and the draught being so arranged that, when the fuel is undergoing combustion, the lime may not be heated too highly, but yet sufficiently to take the appearance of a dull cherry red. Should the heat maintained be too great, the lime will remain in the ordinary state of quick-lime; or, if it has previously acquired the property of setting, as above described, and then the heat be urged too far, it will again lose it; also, if the lime show no sign of incandescence, the process will be quite ineffective for the purpose intended. Unless, therefore, care be taken that the temperature to be maintained, during the second heating operation, be neither too high nor too low, the lime will, when made into a paste with water, still behave in the ordinary manner of common quick-lime; that is to say, instead of hardening into a solid coherent mass, it will either fall to a powder, or, if mixed with more water than is sufficient to convert it into a hydrate, it will dry up into a shrivelled cracked mass. Instead also of solidifying when immersed in a pasty state in water—as is the case when it has undergone the above-described process in a proper manner—it will quickly fall abroad.

This heating of the lime in the presence of an atmosphere derived from the burning fuel, is continued for twelve hours, more or less.

Although the processes, as will appear from the foregoing, is chiefly applicable to limes prepared from chalk, or the ordinary purer limestones, yet the patentee does not confine himself to these. Limes possessing weak or moderate hydraulic properties may thus be converted into cement, much better suited for many purposes than when in their ordinary state. When, however, these properties become so developed as to set quickly when burned in the ordinary manner, it it obvious that it would be useless to adopt a more expensive one.

The prepared lime, when removed from the kiln, will usually be found to have reäbsorbed a small amount of carbonic acid.

When removed from the kiln, the lime is reduced to a power, and packed in air-tight casks for the market. A similar effect to that above described may likewise be produced in an ordinary lime-kiln,—the limestone being converted into quick-lime, and then subjected to the foregoing second heating process in one continuous operation. This mode of effecting the desired change is, however, very precarious, and attended with great difficulty. When it is attempted, the quantity of fuel must be greater than in ordinary lime burning; and as soon as the conversion into quick-lime has been accomplished, the temperature must be reduced by a proper regulation of the draught, so as to comply with the above specified conditions.

In using the cement, care must be taken to wet the surface to which adhesion is required to be made; and it is advisable even to rub into it some of the stuff, thinly mixed, before laying on the mass. The cement, when wet, should be wetted at intervals during the first day.

Ornamental castings may be immersed in water for a few minutes after the cement has solidified; and care should be taken that the thickness of a coating be no greater than necessary, as the tendency to heating, after it is made up, though greatly modified, is not entirely destroyed; and this property, when the cement is in bulk, might endanger its safety.

When used as a plaster, it may be mixed with a proportion of chalk in the ground state; it will not then give so strong a resistance to a transverse strain, but may still be worked to an excessively hard and well-polished surface.

When used externally, or as a pavement, it may be washed over with a solution of silicate of potash or soda, as this increases the hardness of the surface, and renders it more impervious.

Court of Inventions at the Crystal Palace.—Inventors, and those interested in inventions, will be glad to learn that the directors of the Sydenham Palace have opened a court of inventions as an addition to this magnificent exhibition, and they invite contributions of models and drawings of new inventions. The great advantages of such an arrangement are to be afforded to exhibitors free of all charge for space, the articles being, of course, delivered at the palace carriage paid. We believe many parties who were exhibitors at the recent exhibition of the Society of Arts, having had circulars addressed to them by the directors, have transferred their models and drawings to the Crystal Palace, thus availing themselves of this opportunity of keeping their inventions prominently before the public. We have no doubt that the arrangement will be received as a boon by a great number of publicity-seeking inventors, and it is to be hoped, that in the Crystal Palace the inventions will stand a chance of being seen by others than mere rival inventors, for it too often happens that few parties visit exhibitions of inventions but inventors themselves, and they are, of course, each too engrossed with his own particular models or drawings to pay much attention to rival productions.

ROBINSON'S SCREW AND SLIDE LEVER STEERING GEAR.—A simple, powerful, and apparently durable steering apparatus for ships, has lately been patented by Mr. John Robinson, of North-Shields, and worked out by the well-known makers, Messrs. Pow and Fawens, of that place. In this arrangement, the steering wheel is set a little out of the keel line of the ship, on the port side; and its spindle, which is carried in two end pedestal bearings, is cut with a stout square screw thread. This screw spindle has upon it a long traversing nut, fitted with a pair of diametrically opposed joint stud pins, for connection with the end of the sliding lever, which forms the actual tiller. The joint end of this lever is made with a fork and straps, for embracing the stud pins of the nut. The remaining portion of the lever is a plain cylinder, and it is entered freely through a long inclined eye-piece on the rudder-head, which is, of course, on the starboard side of the screw spindle, and opposite to the longitudinal center of the latter. The eye on the rudder-head works on a stud pin, so that, in all circumstances, the action is easy and free from strain. As the screw spindle nut traverses forward or aft, in obedience to the turn of the steering wheel, it carries with it the outer end of the tiller, which thus acts as a lever to turn the rudder; and as the nut must always move in a straight line, the sliding tiller traverses back and forward in the eye of the rudder-head, to reconcile the right line action of the nut with the rotatory action of the rudder-head. The effective leverage of the tiller thus becomes greater as the rudder is moved from amidships to either the starboard or port side, and hence the steersman's power is increased in proportion to the external fluid resisted.

FLAX AND PLANTAIN FIBRE FOR PAPER-MAKING.—A bill for the incorporation of an undertaking, to be called the Fibre Company, for supplying the serious want of a cheap material for paper by means of the fibre of common flax, is now before Parliament, after vain endeavors to avoid the trouble and expense of going there by obtaining a charter of limited liability. The West India plantain, too, has been called to the paper-maker's aid. This was noticed, a few nights back, in the House of Lords, by the Earl of Derby, who produced some specimens of the raw and manufactured articles. These were a specimen of the fibre of the plantain, (*Musa Paradisiaca,*) and a specimen of a textile fabric, of silky appearance, manufactured from the fibre; a specimen of the fibre of the *Hibiscus Esculentus* (Okhro:) a specimen from the seed-pod of the *Cryptostegia Grandiflora*, suitable for india-rubber withe. The body of the plant yields gum caoutchouc, and the bark of the branches a fine fibre. Also, two specimens of paper made from the plantain fibre; one specimen rough and unbleached, to show the great strength and tenacity of the fibre, and another specimen, of very good quality, bleached and carried through all the operations for the best paper. Paper made from the plantain fibre, and of an excellent quality, can be supplied at a cheaper rate than that made from rags. The abundance of the material is naturally an important element in the question. On one estate in Demerara, there are cut down 160,000 plantain trees every year, merely for the purpose of clearing. All these trees contain fibre capable of being manufactured into textile fabrics, or rope of various degrees of tenacity, or paper. The inventors have obtained a patent, and have made application to the Legislatures of Jamaica and British Guiana, and in both these colonies this invention has been made the subject of specific notice in the Governor's speech. The process and the machinery employed have been examined by committees of both houses of Parliament in these colonies, and their reports have been most favorable to the undertaking, so that the measures necessary to carry out the project have been passed at the public expense. If the Government could do anything to promote a manufacture which finds an inexhaustible quantity of raw material to meet a demand that is unlimited—for hemp, for textile fabrics of various kinds, and, last of all, for paper cheaper than could be formed of rags—and if these articles could be produced in colonies that have suffered such great distress, they would do much to introduce new prosperity into these colonies from a new description of industry. The matter is one of no ordinary importance, and it was well deserving the attention of the Government.

Maynard's Combined Threshing and Dressing Machine.—A new agricultural machine, contrived for effecting the better separation of the chaff and cavings from grain and straw as threshed, has lately been introduced by Mr. R. Maynard, of Whittlesford, Cambridge. The plan which Mr. Maynard has followed out in his new design, has been copied from that in common use by every hand-tasker, who, when he wishes to make up his corn so as to produce chaff fit for the chaff-house, fills his riddle from the rough heap, and, after a few shakes, returns and sifts out the remaining corn on the same heap, instead of continuing the process till the corn is clean sifted out; by this method the roughest is re-sifted, and the chaff left in the corn is free from cavings. This is precisely the principle embodied in Maynard's machine, in which, instead of sifting quite down, as is done in most machines, only the first produce of the riddles is subjected to the dressing blast, while the remainder is continually being returned and mixed with the fresh proceeds of the drum, and the result is a separation of the chaff as perfect as is generally obtained from hand-sifting. This machine also prevents a waste of corn with the chaff, by returning the tail, or that portion which is blown out with, and falls short of, the chaff, and submitting it to a repetition of the process; by this means the whole operation of dressing is done without permitting any portion of the corn to fall on the ground, and it is finally delivered by self-acting apparatus into sacks. The machine is peculiarly smooth in its action—this result being obtained by springs, and by making the two riddles balance each other. Mr. Samuel Jonas, the well-known Cambridgeshire agriculturist, has adopted the new machine, and speaks highly of its work.

Improved Pavement, Roofing, Footways, etc.—The following is the mode of preparing the mastic or cement:—Put into a cauldron, on a fire,—1st, natural mineral bitumen of Bastennes or any other country; 2d, natural asphalte (the bitumen and asphalte are employed in the usual well-known proportions;) 3d, when the asphalte and the bitumen are melted and well mixed together, add to them, instead of sand, a suitable quantity of mineral ore of iron, or ore of other metal, in powder more or less fine; 4th, boil the whole until the matter is in a fit state to be employed. It is as well, first, by washing, to free the minerals or ores from all foreign matters which may adhere thereto; 2dly, to add to the mastic a suitable quantity of oil of resin, or of any other oil of the same nature, not exposed to the inconvenience of drying, so as to give the mastic all the requisite malleability; but these two conditions are not indispensable. The powders of the different minerals or ores may be replaced by filings of iron, or of cast iron, or of any other metal, either by powder of iron, cast iron, or any other metal prepared by special manufacture.

The natural asphalte may be replaced by carbonate of lime in powder; but in this case it is useful, although not indispensable, to compensate for the natural bitumen of asphalte, which is found wanting in carbonate of lime, by a proportionate increase of the quantity of bitumen of Bastennes, or other country, or by a proportionate quantity of oil of resin, or any other oil of the same kind.

After having substituted, for natural asphalte, a carbonate of lime, gastar or pitch can also be substituted for the natural mineral bitumen of Bastennes; but in this case, to compensate for the too great volatility of the oils from these materials, it is necessary to mix with the mastic a suitable quantity of less volatile oil, such as oil of resin, or of the like nature. This cement may be employed for buildings, coatings, roofings, metallic sheetings, roads, streets, or footways; in a word, for all purposes where cements or mastics are necessary: it may even be employed for painting all materials. For roads, streets, or footways, it may be employed alone, or in the form of concrete, or with iron or wood in the form of frames, or any other form. The forms preferable are those having the form of an 8, formed by simple bands of iron in the form of T, or the form of unequal and irregular corrugates, fluted; grooved, or indented sheets. These corrugations, flutings, grooves, or indentations, should be unequal in size, that is to say, that each upper corrugation, etc., should not be so large as the lower. The angles of the corrugations, etc., may be right-angled; but it is preferable that the angle should be slanting inwards towards their bases, so as to form more or less acute angles with the base. The corrugations may also receive a more or less conical form. The upper corrugations, etc., may even be rounded. The sheets of iron may be simply undulated, the undulations being more or less deep.

Modern Rail-Bar Rolling.—The Rhymney Iron Works Company has just rolled the largest railway bar ever produced. It is one of Barlow's patent rails, and has been sent to the Paris Exhibition. Previous to the appearance of this example of such rolling, a 22 feet rail was the ultimatum, but the Rhymney Company has gone, at one stride, to a length of 52 feet 6 inches. Mr. G. P. Hubbuck, the managing engineer of the works, conducted the operation, and he has made such excellent work in the present instance, that the rail has not been painted. It is simply brushed over with oil to repel the attacks of rust, and in this condition it will make its appearance in the great show of France.

THE ERIE RAILROAD.

THIS is an immense work. Its great extent, reaching 461 miles, from New-York to Dunkirk, is not more remarkable than the immense labor required in its structure in numerous places, or the unrivalled scenery which it constantly opens to the traveler. Its management exhibits the same untiring energy and ceaseless watch, guarding the immense number of passengers conveyed over it from accident, and inspiring them with a feeling of security not felt on other roads and under a different system. The conductors are attentive to the wants of all, and are just what they should be.

We have recently passed over portions of this road for the first time, and never have we seen greater variety of attractive landscape, in a day's journey in the cars, and perhaps cannot point out more remarkable scenery than this ride brought to our view. We had intended a detailed reference to some of these localities in the present number, but we find that our space is already occupied, and must defer it till our next issue.

THE NEW-YORK CENTRAL RAILROAD.

THIS road extends from Albany to Buffalo, and now includes, also, on the same management, a branch to Niagara Falls, viz., the Rochester, Lockport, and N. Falls Division. This leaves the main road at Rochester. This road conducts the traveler through one of the most flourishing portions of the country. It passes by Schenectady, Utica, Rome, Syracuse, Clyde, Palmyra, Rochester, etc., a distance of 298 miles. At Utica it connects with the Black River and Utica R. R., now completed to Trenton, a distance of sixteen miles. This is the proper mode of reaching that delightful and imposing spot, Trenton Falls. From the cars you are conveyed two miles by stage to the hotel at the Falls, kept by Mr. Moore, where the traveler finds everything furnished him that he could reasonably expect, and of the very best quality. No table that we saw on our recent tour was served in better style than his. We would have been delighted to make it our home for many days.

But we must say one thing in relation to the Black River and Utica R. R. If they expect the visitors to the Falls to build their roads, they are doing perhaps as well as could be expected. But if they suppose that travelers will pay seventy-five cents for riding eighteen miles, in these days, without thinking themselves imposed upon, they are probably much mistaken. The regular and uniform charge upon the Central Railroad is but two cents a mile, while here it is more than double that, and though the total is small, the rate is as exhorbitant as if the road extended a thousand miles. For this, however, the Central road is not responsible. *They* attend to their own road, and do all that the public have a right to ask. All the conductors are gentlemen, and understand the wants of the traveler, and do all they can to supply them. It is a pleasure to fall into such hands. We shall take occasion to refer again to this road hereafter.

Railroads in France.—The total length of railroads opened and in use in France at this time is 4,975 kilometres, (3,091¼ miles,) made up of the following roads of the length annexed:

Names.	*Kilometres.*	*Miles.*
Northern Railroad,	707	439¼
Anzin and Somain,	19	11¾
Paris and Strasbourg,	863	536
Montereau and Troyes,	100	62
Western Railway,	258	160¼
Paris and Rouen,	139	86¼
Rouen and Havre,	92	57¼
Rouen and Dieppe,	51	31¼
Paris and Orsay,	25	15½
Grand Central,	215	133½
Orleans and Branches,	1,155	711⅛
Paris and Lyons,	555	344¾
Lyons and Mediterranean,	528	328
Southern Railway,	251	156
Cienture (around Paris,)	17	10½
Total	4,975	3,091¼

The average gross receipts per kilometre of all the railways for the first six months of the current year ending 30th June, is 23,686 francs, which is equivalent to $7,132 50 per mile. This is a difference of 13.97 per cent. in favor of this year over the same period of last year, 1854. The most profitable roads are the Paris and Lyons road, of which the gross receipts during the six months were 35,051f. per kilometre, the Grand Central 31,914f. per kilometre, and the Northern Railway, 30,524f. per kilometre.

There are upwards of five thousand kilometres more of railways in France now in process of construction or conceded and soon to be commenced.—*Paris Correspondent of the National Intelligencer.*

Smokeless Furnace.—We have during the week inspected an entirely new arrangement of steam boiler furnace, in action, on a 25 horse-power boiler, at the granaries and flour mills of Mr. Edward Gripper, Winchester wharf, Southwark. The principle of construction is that of mechanical motion applied to the bars, but different to anything yet introduced. Every alternate bar is so connected with a cross-piece at each end as to form one entire movable frame, which is connected by gearing with the motive power. The motion given to it is angular; first, the bars rise very slowly about an inch above the stationary ones, they then move gradually in a lateral direction towards the bridge, again sink in a vertical direction about an inch below the other bars, and then move laterally forward to their original position. What are termed the stationary bars are not fixed as usual, but hung in such manner as exactly to balance the vibrating frame with the load of fuel which it has to move, thus taking but little power from the engine to keep them in motion. The fuel is fed through a hopper and regulating incline plane, and the whole is self-acting, requiring but little attention from the stoker. We were informed that this apparatus had been in constant use about six months, that no difficulties whatever arose from the mechanical motion; there was an entire absence of clinker, nearly perfect combustion of the fuel was effected, and during our visit not a particle of smoke was visible from the chimney. Mr. Gripper estimates the saving of fuel alone at about 10 per cent., besides numerous other advantages.—*London Railroad Journal.*

A New Enterprise in Salem.—Among the contemplated enterprises of the coming year in Salem, the *Gazette* says, is to be the building of a large iron ship, of about 800 tons, by Mr. James Tetlow, a skilful machinist, who came there several years ago from Providence, R. I., and whose workshop is in the yard of the Naumkeag Steam Cotton Company. It gives the following particulars of the undertaking:

The iron ship which Mr. Tetlow has contracted to build, is for Capt. Thomas McKenney, of Newburyport, and is to be employed in the South American trade. Her hull is to be entirely of iron, to be constructed in five sections, with iron bulkheads between, so that either section will suffice to float the ship in case of disaster. One of the sections might be entirely stove in by such a disaster as occurred to the Arctic, without any danger of the ship's sinking. She is to be called the "North Star." Capt. McKenney has found that wooden vessels employed in this trade are ruined by worms in a very short time. Mr. Tetlow expects to be about thirteen months in getting the ship ready for launching. He is now gathering materials, and the powerful and expensive machinery necessary for his purpose, and during the winter will be preparing the ribs and keel, which will be set up in the early spring.

A Substitute for Silver.—A wonderful discovery is announced as having been made recently by a French chemist, M. Deville, to-wit: a new, easy and cheap method of separating *aluminum*, the metallic base of common clay, from the other constituents. This metal rivals in beauty pure silver and surpasses it in durability. Hitherto it has existed only in small quantities, and has been esteemed rather as a curiosity, the price in France, a short time since, being about the rate of gold! But by Mr. D.'s improved method it can now be produced in masses sufficient and cheap enough to replace copper, and even iron in many respects, and thus place the "new silver" into such common use as to suit the means of the poorest persons. These facts are gathered from the *National Intelligencer*, which also adds: "Among the many remarkable qualities of aluminum are its resistance to oxydation, either in the air or by acids, its hardness, its wonderful lightness, its malleableness, the facility of moulding it, &c., Mr. Dumas mentioned (before the Paris Academy of Science) another, its sonority. An ingot was suspended by a string, and being lightly struck, emitted the finest tones, such as are attained only by a combination of the best metals."

Microscopic Photographs.—Some microscopic photographs exhibited at Manchester, Eng., the other day, excited much admiration. One, of the size of a pin's head, when magnified several hundred times, was seen to contain a group of seven portraits of members of the artist's family, the likenesses being admirably distinct. Another microscopic photograph, of still less size, represented a mural tablet, erected to the memory of William Sturgeon, the electrician, by his Manchester friends, in Kirkby Lonsdale church. This little tablet covered only 1-900th part of a superficial inch, and contained 680 letters, every one of which could be distinctly seen by the aid of the microscope.

Valuation of Worcester.—The Worcester *Spy* publishes the valuation, number of rateable polls, etc., of that city, for 1855. The valuation is, of real estate, $11,787,000, and of personal property, $6,263,000, total, $18,050,000, being an increase since 1854, of $950,000. The number of polls is 5825, being a decrease of 79. The *Spy* says: "The decrease of rateable polls is to be accounted for by the two great fires which have occurred since the enumeration of 1854. The first fire, it was estimated, threw at least one thousand persons out of employment, and the other probably from one to two hundred. A large portion of those who were unmarried, together with many who had families, left the city. The establishments burnt by the last fire have not yet been rebuilt. Those first burnt have mostly been rebuilt, but are not yet filled up, as before. Aside from this drawback, there must have been a considerable increase during the year.

BONELLI'S LOCOMOTIVE ELECTRIC TELEGRAPH.—The Florence (Italy) correspondent of the Newark *Daily Advertiser* furnishes the following additional particulars in regard to this wonderful discovery:

"A second successful trial of Bonelli's locomotive electric telegraph has been made on the Turin railway with the concurrence of the ministers of State and the diplomatic representatives of France and England. Two trains traversing a five-mile track exchanged communications till all were fully satisfied. The correspondence with the stations was equally satisfactory; and orders to 'stop' and to 'proceed were obeyed as by volition. Morse's apparatus reduced to the dimensions of a coat pocket, including paper, &c., was used on this occasion. The simplicity of the invention is amusing. The wires running from the little pocket machine through the bottom of the car, trail on parallel insulated iron rods, which are the mediums. Strange that the notion never occurred to the Yankee nation!

"The inventor, who is the director of the Sardinian telegraphs, has submitted to the government an inexpensive project for working them, and also for continuing the submarine line now in use between Genoa and the islands of Corsica and Sardinia, (200 miles,) by way of Malta and other intermediate points, to Constantinople and the long Black sea line, and which will also be propounded to the electricians of the thousand-leagued Atlantic.

VALUATION OF SPRINGFIELD.—The total valuation of the real and personal property in this city is $8,409,870, which is an increase upon the valuation of last year of $647,620. Number of ratable polls, 3793—increase from 1854, 139. Springfield's portion of the State tax is $4990 50; of the county tax $9003 63—her city tax $64,995—making a total to be raised by tax on polls and on property of $78,019 13. The polls are taxed $2 20 each, making $8344 60. The tax assessed on the property valuation is $8 50 on the $1000, making $71,483 89. Total sum assessed this year, $79,828 49, which is $1779 36 over the amount to be raised. The sum assessed this year is greater thanever before, and the rate higher by $2 50 on the thousand.—*Springfield Republican*, 8*th*.

PHOTOGRAPHS, NEIPCE'S PROCESS.—Mr. Neipce's process of obtaining positive photographs is to expose a sheet of calotype paper to the daylight for a few seconds, or until a visible discoloration or browning of its surface takes place. Then it is dipped in a solution of iodine of potassium, consisting of 500 grains to the pint of water. The visible discoloration is apparently removed by the immersion—though such is not really the case, for, if the paper were dipped into a solution of gallo-nitrate of silver, it would speedily blacken over. When the paper is removed from the iodine of potassium, it is washed in water and then dried with blotting paper. It is then placed in the camera obscura, and after five or ten minutes it is removed therefrom and washed with gallo-nitrate of silver, and warmed.

NEW BOOKS.

Cora and the Doctor, or Revelations of a Physician's Wife. Boston: John P. Jewett & Co. 407 pp.

This is a capital book; one of Jewett's best, and that is saying a good deal. Ther are but two things in it that are as they should not be—to wit, its title, which is quite forbidding; and second, the name of a writer who can make such a book should not be unknown. Many of its scenes are full of interest, some of which are in connection with a sick-room. The whole is pervaded by a decidedly religious current of thought, and cannot fail to do good. There are no repulsive pictures in it as might be supposed from its title.

Modern Mysteries Explained and Exposed. In four parts. By Rev. A. Mahan, first President of Cleveland University. 466 pages. Boston: J. P. Jewett & Co. 1855.

Dr. Mahan has written a very sensible book on the mysterious subject of Spiritual Manifestations, etc. The subject is looked at carefully and logically, and "the spirits" disappear before his magic wand of rational investigation. His ideas seem to accord very much with those of Mr. Rogers, in a small work noticed by us a year or two ago; and we are strongly impressed with the conviction that the truth is at least approximated by this learned divine. We commend this volume to those who wish to read on this subject.

Olie; or, The Old West Room. The Weary at Work and the Weary at Rest. By L. M. M. New-York: Mason & Brothers. 1855.

Olie is a young girl who experiences a succession of misfortunes; one hopeful prospect after another ending only in disappointment, often very severe, till at last, as usual, a happy marriage ends all her sorrows. Her life is crowded with scenes of interest and calculated to excite sympathy. The whole net-work of the story is well contrived. The moral of it is excellent. Let such books be multiplied. The more the better.

The Elder Sister. By Marian James, author of Ethel, etc. New-York: Bunce Brother. 328 pages.

A capital domestic story, the plot of which is perfectly natural, and its characters drawn with great discrimination and good taste. Without professing to teach, it is full of excellent, practical wisdom, and might profitably be read in every household.

A Voice to America; or, The Model Republic; its glory or its fall, with a review of the Republics of South America, Mexico, and the Old World, applied to the present crisis of the United States. New-York: Edward Walker. 404 pages, 12mo.

The title shows the object of this work, and the space it occupies demonstrates that the numerous topics it discusses are scarcely more than glanced at. The author appeals to facts in the history of ancient and modern times, which teach us our danger. Its doctrine, that would *seem* too obvious to be denied, is, that Americans must rule America. It is very certain that no others can, if they try, and every attempt of the kind, in the town-hall, or legislative assembly, without exception, proves it. Nor are Americans always wise enough to rule their own neighborhoods. They do not, however, wish any help from those who do not understand our past history and have no acquaintance with our political and social institutions.

Theism, the Witness of Reason and Nature to an All-wise and Beneficent Creator By Rev. John Tulloch, D.D. Robert Carter & Brothers: New-York.

This volume is the product of a mind deep and clear, and accustomed to discriminate. It is philosophic and simple; not above an ordinary intellect, and able to instruct and interest the learned. It has well earned the premium bestowed upon the talented author for the best essay on that subject.

The Horticulturist.

This very useful and elegant journal has fallen into new hands. Since the death of Mr. Downing, it has been ably and successfully conducted by Mr. Barry, who has shown himself eminently fitted for such service. A pressure of business engagements leads him now to resign, and he retires from his responsible post with the unqualified respect and esteem of every intelligent reader of his journal. May his last days be his best days. His place is henceforth to be occupied by John Jay Smith, Esq., of Philadelphia already favorably known as a successful "horticulturist," and with ample means for continuing the work with ability and doing honor to the cause he espouses, and we trust he will be abundantly sustained and amply rewarded. We wish him all possible success.

[Note.—This notice was accidentally laid over, being prepared for a former number.]

NEW MUSIC.

New Music by Wm. Hall & Son.

These gentlemen have lately issued some very beautiful things. Among them are

"How Sleep the Brave." Trio for three female voices. Composed by J. A. Fowler. A *moderato* movement, very sweet and very simple.

"Good Night and Pleasant Dreams"—Tyrolean. Words by Anson G. Chester, and composed by Wm. Vincent Wallace, not so simple as the former, but not difficult, and very beautiful.

"Lilly-Willy-Woken." New song and chorus. By Henry E. Work. Very simple, comic, and good of its kind. It speaks of sundry mishaps to Bill Vining all through an attempt to break "a sorrel colt, some two years old or more." He lost his whip, his money, and his lady-love.

"Love's Approach,"—Duett for soprano and contralto. Words by H. S. Cherley, and music by Wm. Vincent Wallace. This beautiful duett has recently been sung, with great applause, by Mesdames Parodi and Strakosch at their concerts in this city.

Music in New-York.

The Academy of Music will soon be opened for a season of forty operatic performances, including the Prophet, the Hugenots, etc., etc., with a very strong corps of performers. Madam Lagrange is the principal soprano, and she has had no equal as a vocalist since the lamented Sontag. While her dramatic powers are of a high order, in person and manners she is also quite charming. She will be supported by Miss Hensler, and Brignoli, Morelli, and Amodio. These have a well-established reputation here. Miss Hensler is one of the most promising of her age that we have ever seen. Besides these, Castellar, from the London Covent Garden, for whom Meyerbeer wrote the part of Bertha, in The Prophet, and who has a very high European reputation, and Signorina Aldina, very highly commended; Salviani, an admirable tenor, and Caspina, a basso "of extraordinary voice," are also announced as engaged. Max Maretzek is the conductor. Such a combination of eminent artists cannot fail to attract.

Theatrical.—Mlle. Rachel still plays to respectable houses. The *furor*, however, passed away with the earlier performances. She has lately reduced her prices, with a corresponding increase in the attendance. There is no doubt of her ability as an actress, although there may be a difference of opinion as to her exact position in the scale of merit as an artist.

Mademoiselle Rachel has given a reading in the Tabernacle to a very good house, and with excellent success.

Sacred Music.—There will be several performances of sacred music, of a very high order, in the course of the season, though the details are not yet laid out.

List of Patents Issued

FROM AUGUST 3, 1855, TO AUGUST 21, 1855.

James Melville, Roebank Works, Great Britain, and Jos. Burch, Craig Hall, Great Britain, machine for printing textile fabrics.

Samuel W. Brown, Lowell, improvement in gas regulators.

Jacob Busser, Philadelphia, improvement in railroad signals.

D. D. Badger, New-York, improvement in iron houses.

Leander W. Boynton, Worcester, improvement in machine for preparing flocks.

Leonard Bailey, Winchester, Mass., plane scraper.

John Broadbent, Oak Grove, Ky., improvement in looms.

James Connor and Thos. Newby, Richmond, Ind., improvement in machine drills.

Robert Cochran, Cincinnatti, improved method of hanging mill stones.

Dewitt C. Cummings, Fulton, N. Y., improvement in straw-cutters.

Daniel Dunlap, Concord, N. H., improved cutter-head for irregular forms.

Robt. W. Fenwich, Brooklyn, and Reinhold Boeklen, Jersey City, improvement in corn planters.

Alden Graham, Roxbury, improved wrench.

John N. Gamewell, Camden, S. C., improvement in apparatus for discharging atmospheric electricity from telegraph wires. Patented in England, Sept. 16, 1854.

A. F. Gray and J. C. Fincher, Thibodeaux, guage attachment for hand saws.

Liveras Hull, Charlestown, Mass., improvement in braiding machines.

John L. Irwin, Franklin, Ala., improved mode of securing tires upon wheels.

Peter H. Jackson, New-York, improvement in ship's winches.

William J McIntire, New-York, improvement in propelling vessels by the direct action of steam on the water.

John G, McNair, West Farms, improvement in manufacturing carpets.

D. W. Perkins, Rome, improvement in dental chairs.

Chas. A. Postly, Philadelphia, improved machine for measuring and weighing grain.

Chas. E. Parker, Boston, and Joseph Sanger, Watertown, Mass., improved mode of adjusting blinds to windows, etc.

B. E. Barkhurst, Brunswick, Me., machine for sawing lumber.

Edward Page, Worcester, improvement in molasses pitchers.

Silas G. Randall and James H. Jones, Rockton, Ill., improvement in seed planters.

Amasa Stone, Philadelphia, improvement in forming screw threads, etc., in the necks of glass bottles and similar articles.

Geo. W. Smith, Nanticoke, improvement in tanning apparatus.

Addison Spaulding, Lowell, improvement in the construction of artificial legs.

Wm. J. Temple, Princeton, Mass., improved self-adjusting tongue iron.

James M Thompson, Holyoke, improvement in oil drippers

Addison Capron, Attleboro', and Jos. S Dennis, Somerville, Mass, assignors to themselves and Henry M. Richards, Attleboro', aforesaid, improved machine for attaching hooks and eyes to cards.

Jno. B. Tay, North Woburn, improvement in in the bed spring of leather splitting machines.

Wm. Van Aden, Poughkeepsie, spoke machine.

Halvor Halvorson, Cambridge, assignor to Horace Barnes, Boston, improvement in the manufacture of daguerreotype cases.

Phillipe Stenger, Philadelpeia, assignor to Pascal Yearsley, of the same place, improvement in the manufacture of plate glass.

Louisch Koch, New-York, assignor to Peter B. Sweeney and Michael Lacourt, of same place, improvement in machinery for making paper pulp.

James Smith, Laurel, Md., assignor to himself and Wm. Botterill, Howard Co., Md., improvement in temples for looms.

Francis Arnold, Haddam, Ct., egg holder.

John and Evan Arthur, New Brunswick, N. J., governors for steam engines.

Joseph Leeds, Philadelphia, Pa., furnaces for heating buildings.

F. L. Bailey, Freeport, Ind., replacing cars.

Oramel C. Barnes and A. J. Barnes, Stockbridge, Vt., whiffletrees.

Andrew J. Barnhart, Schoolcraft, Mich., corn planters.

Francis Baschnagel, New-York city, compositions for treating rubber and gutta percha.

Jacob Boyers, Granville, Va.; churns.

A. Brown and Abel Coffin, Jr., Sabine city, Texas, straining saws by atmospheric pressure.

D. H. Chamberlain, West Roxbury, Mass., hand press for printing.

Charles Cleveland, Ashfield, Mass., ventilating faucet.

J. J. Dutcher, New-Haven, Conn., steam boilers.

H. H. Fultz, Lexington, Miss., cotton presses.

Joseph Garratt Sen., Indianapolis, Ind., alloys for journal boxes.

J. E. Burrows, Newark, N. J., making zinc white.

S. T. Jones, New-York city, zinc white.

B. W. Gay, New London, N. H., extension vehicle.

W. N. Gesner, Fair Haven, Conn., windlasses.

F. B. Graham, Middletown, N. Y., hernial trusses.

R. J. Morrison, Richmond, Va., cutting apparatus of harvesters.

D. Noyes, Abington, Mass., forging machine.

L. B. Payne, Yazoo City, Miss., hanging window sashes.

R. Ray, Louisport, Ky., gathering cotton stalks.

S. P. Roggles, Boston, Mass., gas regulators.

F. Russell, Boston, Mass., harvesters.

S. B. Sexton, Baltimore, Md., furnaces for heating buildings.

G. A. Somerby and C. W. Fogg, Waltham, Mass., railroad car-brake.

J. Simpson, Louisville, S. C , cotton gins.

M. Tromley, Mt. Vernon, Ill., gun locks.

S. R. Wilmot, New-York city, portable steam sawing machine.

Z. C. Robbins, Washington, D. C , (assignor to A. Martin, Norwich, Conn.,) Mills for compressing and grinding grapes and other small fruits.

E. L. Seymour, New-York city, (assignor to W. O. Bourne, New-York city aforesaid,) apparatus for sifting.

C. Winegar, Union Springs, N. Y., drawing water from wells.

John C. Briggs, Concord, N. H., improvement in the application of the conical pendulum to time keepers.

C. W. Blakeslee, Northfield, Conn., improvement in candlesticks,

William Burnett, Cincinnati, improvement in sealing cans.

Almond C. Buffum, Chicago, improvement in obstetrical extractor.

Edward Campbell, Columbus, Ohio, improvement in glass journal box.

Dugald Campbell, New-York, for swimming glove

John D. Dale, Philadelphia, improved wrench.

Henry Esling, New-York, improved basin stop cock.

Wm. Fields and Solomon Gerhard, Wilmington, Del., improved pressure water-wheel.

Sylvester H. Gray, Bridgeport, Conn., improvement in pumps.

John L. Hardeman, Arrow Rock, Mo, improvement in hemp-cutters.

Horace L. Hervey, Quincy, Ill., and Robert D. Osborne, Springfield, Ohio, improvement in bridges.

John and Thomas Hope, Providence, machines for engraving calico printers rollers.

Joseph Hyde, New-York, improved apparatus for vessels, to indicate their locality, when they sink, and to apply a means of raising them.

Ebenezer Jeffreys, Dorchester, Mass., improvement in railroad car seats.

Benjamin F. Lawton, M. D., Troy, for improvement in journal box alloys.

Lewis H. Lefebvre, New-Orleans, for improvement in warm bath apparatus.

John Matthews, Jr., of New-York, improvement in pressure guages.

Augustus McBurth, Elizabethtown, N. J., improvement in percussion projectiles.

Stephen P. Ruggles, Boston, hand stamp.

Albert M. Smith, Rochester, improvement in railroad car seats.

John Woodward, Wilmot Flat, N. H., improvement in horse yokes.

Alonzo. E. Young, Dorchester, Mass., assignor to himself and Mark Worthley, Boston, Mass., improved door knob.

John Swyney, assignor to himself and James Dandridge, Boston, Mass., improvement in breech-loading magazine fire-arms.

Charles Ketchum, Penn Yan, assignor to Chas. G. Judd and Andrew Oliver, of same place, machine for sawing shingles.

Daniel S. James, New Market, Va., assignor to himself, J. B. White, Dinwiddie C. H., Va., and J. W. McIntyre, Dinwiddie county, Va., improvement in corn and cob mills.

Wm. C. Demain, Boston, assignor to A. B. Ely, of the same place, machine for paging books, etc.

Albert Bingham, Boston, assignor in himself and Andrew J. Bailey, of same place, for burglar's alarm.

John Cram, Boston, assignor to himself and John S. Cram, of same place, improvement in folding chairs.

Chas. S. Bradfield, Philadelphia, improvement in harvesters.

Dexter H. Chamberlain, West Roxbury, Mass., for improvement in curtain rollers.

John J. Crooke, New-York, improvement in window shades.

L. B. Bradley, Watertown, Ct., traps for catching animals.

A. D. Brown, Columbus, Ga., cotton gin saws.

W. O. Bisbee, Camden, N. J., splitting fire-wood.

Thos. Barrows, Dedham, Mass., preparations of wool oil.

J. L. Cisco, Xenia, O., carriages.

F. P. Dimpfel, Philadelphia, facilitating the removal of incrustation from steam boilers.

O. C. Green, Belleville, Ill., harvester rakes.

Asahel Gilbert, Jr., Lowell, Mass., sash fasteners.

G. W. B. Gedney, New-York city, Rotary wood splitting machine.

R. W. and Danl. Davis, Yellow Springs, O., vise.

J. L. Gill, Columbus, O., plows.

Danl. H. Pequea, Lancaster, Pa., lime kilns.

Horace Holt, Winchester, Mass., hand stamp.

B. F. Joslyn, Worcester, Mass., scythe fastenings.

J. L. McPherson, New-Vienna, O., weighing scales.

E. G. Russell, Ravenna, O., regulating valve for steam engines.

F. A. Ross and Wm. H. Marshall, New-York, sewing machine cases.

David Rohan, Cincinnati, O., shutters or blinds for stores.

M. Riche, Cincinnati, O., trimming books.

B. F. Joslyn, Worcester, Mass., breech-loading fire-arms.

Jno. Thompson, Clifton, N. Y., grain and grass harvesters.

Levi Till, Sandusky, O., brick machines.

James Parsons, Dublin, Ind., wagons.

Robt. Beans, Johnsonville, Pa., changing harvesters from reapers to mowers.

S. Bowerman, Detroit, Mich., cutting standing cotton stalks.

James Emerson, Worcester, Mass., ship's windlasses.

R. H. Wait, Barkersville, N. Y., cutting irregular forms.

Henry Waterman, Williamsburgh, N. Y., reaping and mowing machines.

Albert Bingham, assignor to himself and Andrew J. Bailey, Boston, Mass., inkstands.

Nathan Thompson, Jr., Williamsburgh, N. Y., collapsible boat.

J. A. Thompson, Cayuga, N. Y, straw cutters.

Jno. Demarest, assignor to "the J. L. Mott Iron Works," of Mott Haven, N. Y., flask for moulding bath tubs.

Wm. P. Walter and Jacob Green, Philadelphia. vault lights.

RE-ISSUES.

Wm. G. Phillips, Newport, Del., method of closing and opening gates. Patented March 7, 1854.

Hugh and James Sangster, of Buffalo, improvement in lanterns. Patented June 10, 1854.

DESIGNS.

Wm. A. Rogers, Decatur, Ala., design for labels on bottles and jars.

Minnard H. Fowler and Enoch Jacobs, Cincinnati, designs for iron railings.

ADDITIONAL IMPROVEMENT.

Wm. D. Jones, Poughkeepsie, assignor to Henry Weinfield, of New-York, improvement in propellers. Patented April 17, 1855.

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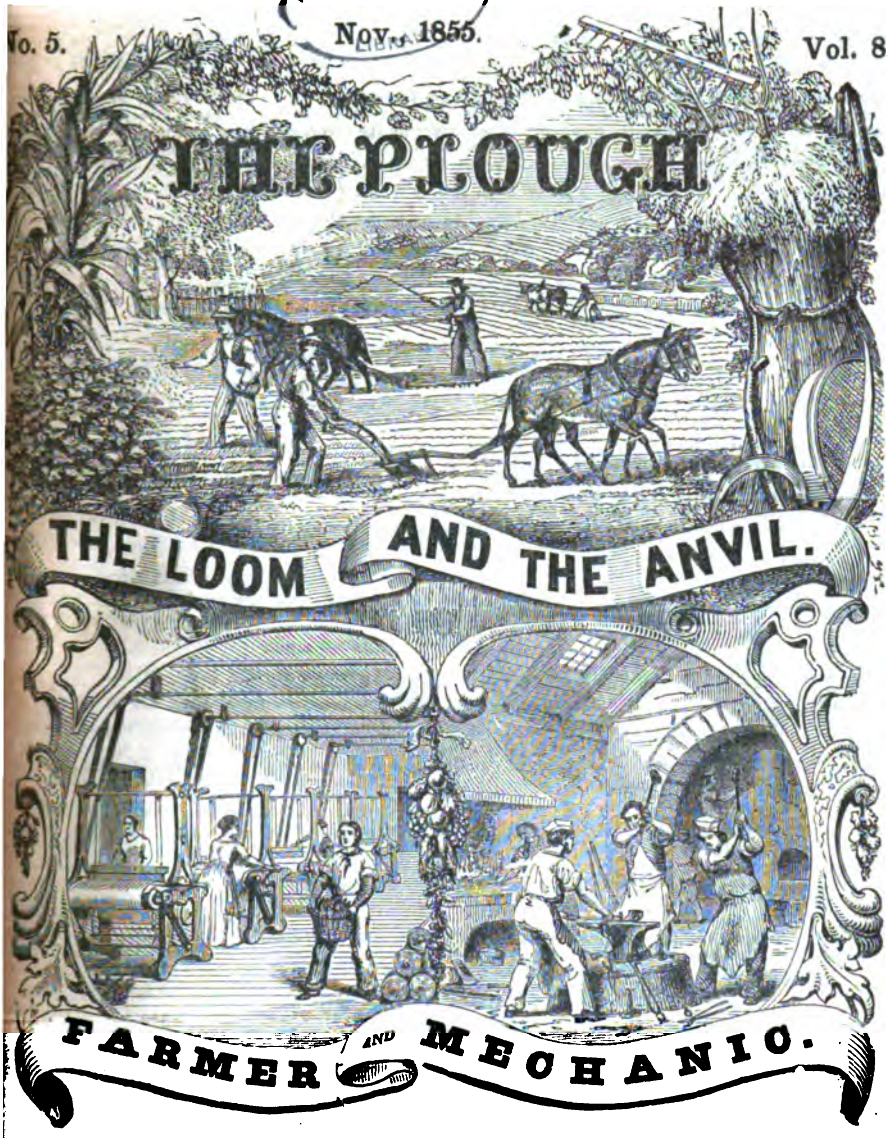

THE PLOUGH, THE LOOM AND THE ANVIL.

FARMER AND MECHANIC.

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Capt. GEO. G. BENJAMINS.

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ALICE ADAMS.

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The Plough, the Loom, and the Anvil.

Vol. VIII. NOVEMBER, 1855. No. 5.

SOUTHERN AND NORTHERN INDUSTRY.

SOUTH CAROLINA AND RHODE ISLAND.

We have repeatedly endeavored to convince our Southern friends, as well as others, that their true policy was to establish and encourage, within their own territory, various manufactures, not only making themselves independent of others, but also introducing a source of very great profit, far exceeding that of any single agricultural product.

A writer in the September number of *De Bow's Review*, seems to hold similar views with us on this great subject, and in an article on giving "a Statistical Review of the State of Illinois," asserted that "the manufactures of Rhode-Island are more valuable than the manufactures and cotton of South Carolina. Thus:

Rhode Island manufactures	$8,640,626.
South Carolina "	2,248,915.
" " raises cotton to value of	4,628,270.

"The population of Rhode Island is but 147,545, while that of South Carolina is 668,507. The area of Rhode Island is but 1,306 miles, while that of South Carolina is 29,000.

On this statement a South Carolinian (as Mr. De Bow informs us in a prefatory note) in his October number, remarks as follows:

"Now, sir, we must do you the justice to believe that you were busy, or traveling, or indisposed, or in some other way prevented from a fair perusal of your proof-sheets. We have ourselves ere now, if we remember rightly, run the gauntlet of your statistical corrections, and acknowledged ourselves fairly chastised and honestly reproved. Most undoubtedly, if you read the above statement at all, it must have been at past the witching hour of night, when editors, like common folk, begin to wink their eyes and long for their pillows. The error of it (to use the harsher term) is too flagrant to escape any wide-awake eye. I say nothing of the spirit of the remark, which shows certainly anything but kindness from the champion of the big Illinois giant, who thus singles out the weakling, South Carolina, as the object of unkind aunt, for her immense inferiority to her little Yankee sister, Rhode Island, nd which points his moral by holding up said South Carolina as a warning o all lazy backsliders, in contrast to her industrious little rival, who shows us, 'beyond a cavil or a doubt, the true grounds upon which a State must rely for its greatness.'

"We pass over the invidiousness of the conclusion to show the insidious falsehood of the statement, or the absolute ignorance of every principle of political economy in the maker of it. '*The manufactures of Rhode Island are more valuable than the manufactures and cotton of South Carolina.*' Is the writer ignorant of the difference between a gross and a net revenue? Does the merchant of Chicago who sells $50,000 worth of goods in the year, for which he has paid $48,000, do a more profitable business than the neighboring farmer who sells the proceeds of his harvests for $6,000, after paying all expenses with $2,000? In our humble opinion, the farmer makes double the gains, and has double the income of the merchant, while, according to the reviewer's system of calculation, the merchant has made more than eight times the profit of the farmer. It is scarcely necessary, we presume, to quote Say and Ricardo to prove that the farmer is the richer man; and yet, in our supposed case, we have the parallel fact to the one upon which the reviewer bases the superiority of Rhode Island. South Carolina, an agricultural State, incurs, like the farmer, but small expense in the raising of her produce. Of the staple which she sells she buys nothing; and after the expense of supporting her laborers, which is small, (their principal provisions being of home growth,) all is clear gain. Even what she manufactures brings her small expense, for she but works up her own produce, which costs her nothing, even as the farmer's wife might spin and knit him socks from his own wool. Her $2,248,915 of manufactures, and her $4,628,270 of cotton, give her $6,877,185 of revenue, nearly free of expense, to say nothing of her rice and other smaller products which are in this calculation entirely ignored. On the other hand, Rhode Island, like the Chicago merchant, has begun by a large outlay. She has not only to support her laborers at an infinitely larger expense than South Carolina, but also to meet immense expense of machinery from which South Carolina is exempt; and again to pay for the material, the cotton and the wool, which she resells in the shape of manufactures, even as the merchant paid for his goods. Does the author of Illinois statistics call all this nothing? He seems to have imagined the cotton and wool a windfall, a dew from heaven, a costless blessing. And the machinery, does it grow on the barren rocks, like oysters perhaps, or New-England clams, to be taken for the gathering?"

With the particular controversy between these two writers in *De Bow's Review*, we, of course, have nothing to do. We have not the pleasure of knowing even who they are. Both show themselves able to manage their own cause, so far as it is defensible, and perhaps neither would thank us for appearing to interfere with them. We do not intend to interfere. But so far as this issue bears upon the great industrial interests of our country, we attach to it a corresponding importance, and as it is thrown directly in our path, we are not inclined to pass it by in silence. We therefore take the occasion that is here presented to urge upon our Southern friends our conviction that manufactures are an essential part of the productive industry of every prosperous community. On this point this particular question has a direct bearing. In enforcing this general topic, we see no objection to a careful examination of this particular and limited inquiry. What is true of these two States, is essentially true of any two States, and of all States, occupying similar positions in respect to the productive industry of the country.

Hence we undertake to prove that the Illinois correspondent of September, if not literally, is essentially correct, that is, that the manufactures of the little State of Rhode Island are of greater value than the manufactures and cotton crop of South Carolina. If it be so, it is worse than folly to attempt to persuade the people that it is not so.

Our friend from South Carolina does not give us any statistics, but confesses the want of them. "We have, unfortunately," he says, "no means at hand to assist us in computing what would be in truth the net income of Rhode Island, according to the reviewer's own statement of her gross income." With the aid of our learned friend De Bow, we will endeavor to supply this deficiency. It is too important a matter to be suffered to rest on any mere assertion, but whatever the truth may be, our refusal to weigh testimony and to compare facts, and to draw logical conclusions, will not prevent the development of the truth in the years to come, nor defend us nor the South from its legitimate and inevitable consequences. Look at the agricultural condition of some of the older States, who practically despise the mechanic arts and manufactures, and see the consequences of the policy against which we protest. In one of our former volumes, (2d,) the honored and learned founder and editor of this journal, Col. Skinner, than whom no warmer friend of the South ever breathed, uses the following language: "There may be seen along the tide water courses, magnificent ante-revolutionary mansions converted into stables and granaries, out-houses in ruins, churches and fences in a state of decay, with vestiges of old orchards, and gardens scarcely visible, roads almost impassable, etc., etc."

Again, the *Richmond Republican*, in 1851, we believe, states that a little more than eighty years ago the imports of Virginia amounted to $4,085,472; in 1849, to $241,935.

Again, the Alabama *Planter* said years ago, "No one can doubt that there is a manifest falling off on the product per acre of cotton, and this reduction tells heavily on the *cost* of production per pound."

But we have no occasion to multiply statements of this kind. They give us no pleasure. But we are unwilling that any false policy should attempt, with even temporary or partial success, to deceive those so deeply interested in this fundamental truth. It is false courtesy that would counsel silence under such circumstances. If success does not attend the policy hitherto prevalent in such districts of country, it is important to look at the details and ascertain what is the exact point on which success or failure depends. The idea that American industry, judiciously managed, will not pay, is too absurd to occupy any one's time or attention for a moment.

Let us, therefore, come to the question before us. What is the testimony in relation to it?

Our first authority is an able and valued correspondent of this journal for many years, and at the present time a grower of cotton, and abundantly able by experience and observation to judge of the profits actually realized by the planter. He speaks for himself in a subsequent page (270) of this number.

Our second witness is the Southern press. A year or two since, some ably written papers appeared, either original or copied, we believe, in the *Soil of the South*, one of the ablest of our exchanges, in which it was estimated that the cotton crop cost the producer eight cents a pound, and which seemed to consider the crop as scarcely remunerative.

Now what is and has been the market value of cotton to the producer? Our witness on this point is the learned and accomplished editor, Mr. De Bow, than whom, on such points, higher authority does not exist.

The prices of upland cotton of different qualities, in 1851, ranged from 7½ to 10¼ cents, in 1852 from 7 to 9¼. In the March number of his *Re-*

view, 1853, p. 181, we found it recorded as follows: "From 1840 to 1844, when the average [price of cotton] was only eight cents," etc. And again, "from 1845 to 1849, the average price was only 7½ cents." In a table on page 284, the prices are set down as follows: for 1850 and 1851, 11.8 cents; 1852 at 9 cents; and from 1840 to 1852, at 8.5 cents. And again, on the same page, it is stated that "the price has been 8½ cents *at the seaports* for the last thirteen years."

Now assuming the cotton crop of South Carolina at [1,000,000] pounds, we have very tolerable data for estimating the net profit of the growth. It then becomes necessary to inquire into the net value of the annual product of the arts not agricultural in Rhode Island.

On this point we bring forward the same witness, our learned friend of the census of 1850. Our friend De Bow appears in his introductory note to endorse the doctrine against which we contend, taking back a previous recommendation of the September article which is censured by his October correspondent, but his statistical tables will not be so accommodating. Turn to page 179 of his Compendium and there read that the profits of the "product of manufacturers, mining and mechanic arts in Rhode Island are 30.18 per cent." Unless Rhode Island falls below the average of New-England, it is true that nearly one-third of all the values of these products is not gain, for the average net profit of these products in the New-England States, is set down at 31.19 per cent.

Now we suppose it is admitted by general consent that the cotton and woolen manufactures of Rhode Island are more profitably conducted than in almost any part of New-England. The mills are generally, or at least very frequently, superintended by their owners, while many of the operatives are comparatively permanent residents of the village. Portions of them, of course, are floating, engaging themselves here or there, as best they may.

Is there any doubt in this testimony, whether these manufactures of Rhode Island pay better than the cotton culture of South Carolina? But this is not the precise point in dispute. Let us therefore look a little further.

The annual product of these interests in Rhode Island Mr. De Bow sets down as little more than $22,000,000. 30 per cent. of this is $6,600,000. The *gross* amount of the South Carolina cotton crop is "$4,628,270." But though this covers all the ground we have been contending for, as to the essential value of manufactures, so far as the point described as in dispute is concerned, we must go a little farther.

The distinction between the products of "manufactures" and of "the mechanic arts" is more in name than in substance, but is often very convenient, though the dividing line may not easily be drawn. Let us then take the "manufactures" proper, which are estimated at $8,640,026. 30 per cent. of this is $2,588,481. Now, what compared with this is the net profit on four and a half millions of dollars' worth of cotton that is "not remunerative?" On this state of the testimony, should we present this subject to a judicious man about to invest his property, which would he choose, the South Carolina or the Rhode Island investment, *allowing the same capital to be required?*

This brings us to our last point—viz., the amount of capital required in these two investments. The amount of capital consumed in these "profits" in South Carolina is estimated in the census as follows:

Real estate - - - - - -	$105,737,492
Personal estate - - - - -	178,130,217
Total - - - - - - -	$283,867,709

while the "true valuation" is $288,257,694. A large proportion of this is devoted to the raising of cotton.

The same authority sets down the capital invested in manufactures in Rhode Island as follows:

In cotton	$6,675,000
In woolen	1,013,000
In iron	428,800
	209,400
Distilleries, etc.,	17,000
	$8,343,200

Again, the entire capital invested in "Manufactures, *Mining*, and the Mechanic Arts," is stated to be $12,923,176.

Whether there can be any disagreement in the jury on such evidence as this—whether that jury is composed of twelve men or twelve millions of men—would seem to be only another form of asking whether they were men of common sense, or whether they jumped at their conclusions under any momentary impulses which might be brought to act upon them:

The general correctness of these calculations is obvious from the fact that we find in page 178 of the Compendium that the manufacture of cotton in the United States pays all the expenses (estimated) with five per cent. interest on the capital employed, and then pays a profit of ten millions of dollars, the entire amount of cotton consumed being valued at less than 35 millions, giving nearly the same per cent. profit as before stated in regard to the manufactures of Rhode Island.

Such statements as we have here presented forcibly remind us that recent writers, who are so freely and, allow us to say, ridiculously advocating, with scarcely a show of argument, the doctrine of disunion, if they are really in earnest about it, begin altogether "at the wrong end." One of them is about to establish (on paper) a line of packets, to run between Charleston and Havre, but has forgotton to furnish, or to begin to furnish, anything for the said packets to carry. *Perhaps* he will confine them to cotton. Another has some different but equally flimsy fabric of which he is to build a great State. No. Such gentlemen would very soon find out that independence, in ANY form, will be and can be carried out with success only by establishing these various occupations among themselves; otherwise they would be as badly off as the new comer on the borders of a wilderness who squats on the land bought and paid for by his next neighbor, but who yet has to borrow, beg or buy of that same neighbor an axe, teakettles and irons, shovel and tongs, cups, saucers, gridiron, chairs, table, etc., etc., before he can have the means of properly preparing and enjoying his first cup of coffee, or his first pork-steak, and who must get the help of the neighbor himself to lay the first timber of a log-cabin. to protect him from wolves and bears.

He who would advocate true independence at the very outset, should establish every useful form and variety of the mechanic and manufacturing arts; and thereby they would produce so happy a change in the financal and general condition of the States now exclusively agricultural, that all other questions would fade into comparative insignificance, or, if not, they would have all the means—physical, moral, and personal—that would be needed to pursue successfully any policy that might be deemed necessary for securing other important advantages.

A fatal error is involved in another remark of this writer, thrown off as if it were not to be questioned, viz., "Of the staple which she sells she buys nothing, and after the expense of supporting her laborers, which is small, (their principal provisions being of home growth,) all is clear gain." A terrible mistake this, or a more terrible practical blunder in suffering it to be true.

The agriculturists of the South do not enrich their lands as they ought, and hence there is a gradual but inevitable "consumption" going on which will ere long bankrupt the richest plantations, and create a desolation, not only in present supplies but in the source of supplies, which will exceed that which the most excitable have ever anticipated from the folly and fanaticism of their neighbors at the North.

We do not believe there is any substitute in these later times, and in the higher forms of civilization, for the various sources of wealth to which we have here had reference. Prosperity in its fullest extent, without them, we believe to be impossible, and therefore it is that we entreat that attention to the subject which will lead those in interest to that course of conduct which the case demands.

Such policy as we here urge is important to all the States, whatever their climate or the productiveness of their soil. Nothing else can secure them a home market, and nothing else will even permit a concentrated population. On any other system we must be limited to a sparse population, imperfect facilities for the management of the traffic necessary in all communities, and a deprivation of many enjoyments which, in cities and large towns, are accessible to all classes.

THE LACKAWANNA COAL REGION.

The lands in this section of country are becoming of great value. Its population is rapidly increasing. Scranton is a new village located on the banks of the Lackawanna river, in the Lackawanna Coal Bed; said to be next to the Schuylkill region, the most extensive Anthracite bed in the world, and even more valuable than the Schuylkill region, because the whole mountain contains either coal or iron. The yield of coal has already been in some instances 50,000 tons to the acre. Land has increased immensely in value in the last two years, since the prospect of a direct communication with New-York has become a certainty; a tract of 150 acres has recently been sold at five hundred dollars the acre, for which two hundred dollars the acre were paid *less than a year since.* The Scranton Iron Works Co., one of the most extensive concerns in the Union, are now engaged in making the iron for the new railroad, and the quality of it is said to be equal to the best of that made in Wales.

This village, which five years ago consisted only of a few scattered hamlets, now contains a population of more than 5000 inhabitants, and many new buildings are in course of erection. A small lot near the Wyoming House containing less than half an acre, sold last week for the location of a banking-house, for fifteen hundred dollars, the same having been purchased in November, last year, for *five hundred*—and the hotel, a large, substantial, three story brick building, erected three years since, and which stock-holders (it being put up by a company) supposed would be at least five years in paying expenses, not only paid a rent of $1200 last year, but divided besides, a handsome profit to the stockholders, who now ask an advance of $20,000 on its cost, though they would two years since been glad to have sold it at a loss, but at that time the prospect of the direct New-York connection was very dim. Now everything is bright, and Scranton in 1860 will probably contain twenty thousand residents.

WHAT A POOR FARMER CANNOT AFFORD.

In an address at the Annual Fair in Erie county, Hon. Horace Greeley made sundry very sensible observations. We note two or three of his *specifications* on the subject taken for our caption, on which we would make a few suggestions. Among other things, said he,

"No poor man can afford to be a poor farmer." "No poor man can afford to cultivate his land in such a manner as will cause it to deteriorate in value." "No poor man can afford to produce weeds." "Farmers cannot afford to grow a crop on a soil that does not contain the natural elements that enter into its composition." "No poor farmer can afford to keep fruit trees that do not bear good fruit, nor to work with poor implements."

All this is well. It is true. It is perfectly undeniable. But it is only one side of the story. Some other kindred truths are equally obvious. That poor cripple at the corner "cannot afford" to waste his time in inaction. That poor scholar cannot well afford the time to walk a hundred miles to the place where he is to seek for employment. That poor sick woman, the farmer's wife, cannot afford to carry about that chronic disease which has been a burden to her for years.

This chapter is a long one, and it is equally true as the former. So the poor farmer cannot afford to be "a poor farmer." Well, can he afford to be poor in any way?

There certainly are two sides to this. "Poor farmers" and poor mechanics have a good deal to say for themselves. The latter would like a set of improved tools. The want of them prevents him from competing for a capital job, which is advertised, and hence he must let his richer neighbor, who is yet a poorer mechanic, secure the contract and pocket its profits. And this was ONLY because he is poor. If he could have procured the tools, he might have secured these profits to himself.

So the world goes. To him that hath is given more abundantly. Were this anything more than the mere accidentals and contingencies, attendant upon a higher which is the true BEING, we should be much puzzled with our theology.

But there are palliatives even here. There are possibilities to the poor man of which he makes no account. The cripple can use crutches, and he ought to do so. But he is not bound to run. So the poor farmer can generally improve his condition, by the exercise of industry, economy, prudence in saving and manufacturing manures, by judicious crops, etc., etc., very much can be done. We think, however, that they need encouragement rather than censure; and to have their hope and self-reliance strengthened. Anything that makes them despise themselves or mistrust their own powers is not only unjust but injurious, and indeed ruinous.

We do not censure the orator for the suggestions in his address above cited, but we bespeak a spirit of kindness and forbearance, and of encouragement for those who as really lament their imperfections as the most ardent reformer.

WHAT FARMERS NEED.

We find the following excellent paragraphs in a report of an address by the Rev. Dr. Huntington, before the Middlesex South Co. (Ms.) Agricultural Society:

" Mr. Huntington announced as his subject not the results of farming but the farmer himself, and the culture of the cultivator. One of the questions for us was what kind of men was it necessary to be in order to raise anything to the best advantage. In the first place he spoke of the dangers arising from the necessary preponderance of manual labor in the farmers occupation, in which intellect was apt to abdicate, and leave everything to rote—plough, sow, cultivate, reap, and thrash, was the rule, binding a man down to physical toil. This should not be, and the farmer should cultivate his intellect, use his head, make his farm his subject instead of being its slave—and here was the merit of modern farming—it was awaking the farmer from his lethargy, and ennobling his pursuit in the eyes of the world.

"One thing which the model farmer wanted, was an invigoration of the perceptive faculties, the getting the eyes open to facts which turn up, whatever way they come, and here was the chief benefit of cattle shows. The farmer goes home with an impulse that he will do his farming better and faith that it can be done better. Another mental faculty he needed was appropriation, to turn to account what he had seen and heard, and having verified what was good, to repeat it aloud. The brain, however, should be trained to discriminate between what was mere speculation and what was theory. The value of this was illustrated at length; and earnest attention to improving, with the aid of the brain, the home lands, the home stock, was claimed to be as good, perhaps, as running off to Western prairies or foreign bloods as the only sources of improvement.

" The natural advantages the farmer had over the average of city classes, in depth of thought, and greater knowledge, was spoken of; and though the citizen knew more of a variety of subjects, yet it was for the farmer by his brain to grasp them all, and be the deep thinker in all branches of knowledge. From the brain the speaker passed to the hand, and in elaborating this spoke of the farmer as an exemplification of the benefit of obedience to the sentence—in the sweat of the brow shalt thou earn thy bread—comparing the effeminacy of those who live without labor with the hardihood of those who earn their bread abroad.

"The third elemental force necessary to a complete agricultural manhood, was that faculty to whose exercise we gave the name of taste. True manliness was impossible without sensibility to the beautiful, and it was a sin to crush it out by contempt or kill it out by neglect.

"There were two directions in which we should exercise taste—in the spirit of order in the useful, and in the ministry of the purely beautiful, raising us into an atmosphere of generous refinement. Music, painting, gardening, floriculture, should be cherished if we would have our children grow up with that love of home which is the mightiest protection against evil.

"The fourth necessary power, the heart, was spoken of as the greatest of all, a sovereign ruling by divine right, the medium of holy influences. It was a sign of a boor, a blunderer, and a bear, to empty the bosom of gentle feelings. The noblest and boldest in earth's history were those who had borne in their hearts feelings of love. We might judge a farmer's heart by the way he treats his brutes. We should not rob our families of politeness to pay it all to the trader we patronize.

"The orator concluded most beautifully, speaking of our duty to keep our New-England pure and true, so that, while founding new ones at the West, we should not let the great exemplar decline. God made the world perfect; sin destroyed its perfection; but it was for us to reproduce Eden everywhere. Middlesex County was not yet finished, and we should go forth and perfect the old enterprises till not a lesson remained to learn and not a power or beauty in nature was left undeveloped."

A LAKE OF PITCH.

A LATE number of *Silliman's Journal* contains an account of that remarkable curiosity, "the pitch lake of Trinidad," W. I. It is situated on the western shore of the Island, near the village of La Braye, which is built on a foundation of hard pitch. The lake stands about 90 feet on a plateau above this village, is circular, and half a mile in diameter, surrounded on all sides with a dense forest. Its face is intersected with a network of water channels, which gives it the appearance of marbled paper. The surface of the pitch is pretty hard, and when the water channels are dry it can be passed over on foot. In the center of the lake the pitch appears to be constantly and silently rising up *en masse*, and what is very singular, numerous pieces of wood are constantly coming up to the surface from below. These are from one to several feet in length, and are forced by the peculiar pressure to assume an upright position, so as to appear all over the lake like stumps of trees protruding through. It is believed that this pitch lake is boiling slowly below. Streams of sulphuretted hydrogen gas frequently issue from beneath, the temperature of which is 97 deg. Fah. The center of the lake is somewhat plastic, but around the sides the pitch is very hard. The water in the streams and small pools is pure and soft; fish are numerous in them, and aligators make them their habitation. Large springs of petroleum are in its vicinity, and about a mile northward there is a bed of brown coal cropping out upon the sea shore; it is about 20 feet thick, and appears from its dip as if it passed under the lake. The pitch is of great depth, for it has been dug into 18 feet in many places. It is believed to be a submerged bed of vegetable matter, undergoing slow distillation by volcanic action underneath. This store of bitumen appears to be inexhaustible. It is used with wood for fuel by the American steamers plying on the Orinoco river. Mixed with pebbles and sand it makes excellent pavements, and ground floors of houses. With ten per cent. of rosin oil, it makes good pitch for ships. The Earl of Dundonald has purchased a tract of 26 acres of it, and has instituted experiments to discover, if possible, some means for making it a substitute for india rubber and gutta percha water-proof or vulcanized fabrics; and he has already made some vulcanized cloth, which, from appearance, bids fair of future success. If such a result crown his efforts—and every person must wish him success—such an inexhaustable supply of cheap material as this lake furnishes will soon bring down the price of such goods in our country, and thus confer unspeakable benefits upon our people.

INSECTS INJURIOUS TO VEGETATION.

HEMIPTERA.

This order includes various kinds of insects that severely try the patience of the farmer and gardener, and often destroy many of his crops.

The term *bug* is applied to those which agree in possessing the following characteristics: the mouth is furnished with a slender beak, consisting of a horny sheath, which contains three stiff and sharp-pointed bristles or needles, which are confined in a groove. They have no jaws, but suck the blood of animals and the juices of plants, after piercing them with their beaks.

The name of this order, Hemiptera, is formed from two Greek words, signifying *half-wings*, and was suggested by the peculiar formation of their wing-covers, of which the fore part is thick and opaque, and the hind part thin and film-like.

Bugs undergo three changes, like the insects already described. But, unlike them, they do not so suddenly change their form nor their habits. In this order the changes which they all undergo are progressive. The young come from the egg without wings or wing-covers. These soon appear in the form of scales, and as the insect becomes older, become completely developed. During this progress, the insect repeatedly throws off its skin to allow of its growth. But in all this progress it is active, and its habits are unchanged. Some bugs have no wings, but are classed under this order on account of their resemblance to the members of it in general structure and habits.

The order is divided into two groups, viz., Heteroptera and Hemiptera. These, like the name of the order, are of Greek derivation, the former suggested by the dissimilarity of the texture and structure of the fore part and hinder part of the wing-cover, while the latter indicates a uniformity of texture and structure in the entire organ. The differences between the two groups are very marked.

1. The true Hemiptera are those whose wing-covers appear thick and opaque at the base, but thin and trasparent, or wing-like, at their tips. The second group contains those whose wing-covers are of the same texture, thin and transparent throughout.

2. The wings of the Heteroptera are laid horizontally on the back. In the Hemiptera they are not horizontal, but inclined, like the wing-covers of locusts.

3. In the former, the wing-covers cross each other obliquely at the end, so that the thin part of one overlaps the thin part of the other. In the latter, they do not cross each other.

4. In the first group the head is more or less horizontal, and the beak is

sues from the fore part of it, and is abruptly bent backwards beneath the under side of the head and the breast. In the second group, the face is vertical, or else it slopes obliquely under the body, so that the beak issues from the under side of the head close to the breast.

5. The first order includes insects that live on animal and also on vegetable juices. The second contains only those living on vegetable juices.

The first group under this order contains various bugs, properly so called, as squash bugs, fruit bugs, etc. We can refer to only a few of the many species.

Coreus tristis, or Common Squash Bug. This was called C. tristis by Dr. Geer, C. moestus by Gmelin, C. rugator by Fabricius, and Coreus ordinatus by Say. This bug, unfortunately, is well known to gardeners, but their habits are perhaps unknown to many. In the latter part of October they quit the plants on which they feed during the months previous, and concealing themselves in crevices, or other secure places, they there pass the winter in a torpid condition. With the return of warm weather, they quit their winter quarters, and as they meet under the young leaves of the squash, in June and onward, they pair, and lay their eggs immediately. At this time these insects are to be found on the ground, or on stems near the ground, but as daylight disappears they get beneath the leaves, and lay their eggs in little patches on their under surface. These eggs are round, flattened on two sides. The young bugs, which are soon hatched, are shorter and rounder than the perfect insect, and of a pale ash color. As they become older, they also become more oval, and of a dull ochre-yellow. They live in little swarms, or families, beneath the leaves on which they are hatched, which soon wither and become brown, dry and wrinkled. They are then abandoned by the insects, which soon exhaust another leaf in the same way. In September and October they become perfect insects, with wing-covers and wings. It is then six-tenths of an inch in length, of a rusty black color above, and a dirty ochre-yellow beneath; the sharp lateral edges of the abdomen, which project beyond the closed wing-covers, are spotted with ochre yellow. The thin, overlaping portion of the wing-covers is black, the wings transparent, but dusky at their tips. The ground color of the insect is yellow ochre, and the rusty black hue of the head, thorax, thick part of the wing-covers and legs, is occasioned by numerous black punctures. On the back part of the head, behind the eyes, are two glossy elevated spots, called eyelets.

In some species of Coreus is a thorn at the base of the antennæ, and the legs are thorny; but these are not found in the squash bug.

When crushed they give out a very strong odor, like that of an over-ripe pear.

To prevent their ravages, they should be killed as they are about to lay their eggs. The eggs may be crushed. A little time spent every day, at the proper season, will prove a valuable service. That which promotes a rapid growth of the vines is also useful. When the plants have attained a vigorous growth they suffer comparatively little from this insect. Hence rich fertilizers are valuable—as the drainings of a barn-yard, etc.

Phytocoris lineolaris, or as it is called by Say, *Capsus oblineatus*, or Little Lined Plant Bug. Insects of this genus are known by the following characteristics:

Eyelets wanting, antennæ four jointed, first and second joints much thicker than the two last, which are slender and thread-like; the head short and triangular; body oval, flattened, and short; thorax broad triangular, with the tip of the anterior angle cut off, and the broadest side applied to the base of the wing-covers. The latter, when folded, cover the whole of the abdomen, and their thin portions have only one or two little veins; the legs are slender, and the shanks bristled with little points.

The P. lineolaris measures one-fifth of an inch or more in length. The males are darker than the females, being almost black above, head is yellowish, with three narrow, longitudinal stripes. A very good means of determining this species is by a yellow spot in the form of a V, often imperfect—only three spots being visible at the place of the extremities of the letter. It is most abundant in June and July, according to Dr. Harris, and is found in all parts of the Union. It lives upon dahlias, marigolds, and other flowers, and on potato vines, etc.

Irrigation is recommended by Dr. Harris, as the best security against their ravages. Soap suds, potash water, decoctions of tobacco or walnut leaves, or a sprinkling of air-slacked lime, are useful. Chickens and *young* turkeys and ducks, will devour great numbers of them.

HEMIPTERA HOMOPTERA, the second group of the order Hemiptera, is subdivided into three large tribes:

1. CICADADÆ. *Harvest Flies*, or Cicadians. These insects have short antennæ, which are awl-shaped, or tipped with a bristle. Wings and wing-covers, in both sexes, inclined at the sides of the body. Three joints to their feet, skins firm and hard. The males make a peculiar buzzing sound. The females have a piercer lodged in a furrow, beneath the extremity of the body. They are readily distinguished by their broad heads, large and very convex eyes on each side, and three eyelets on the crown. On the back part of the thorax is an elevation, in the form of an X. Their wing-covers and wings are transparent and veined. The noise made by the males is by means of a membrane on their sides, which is acted upon from within by a muscle. These drum-like membranes are not visible on the outside of the body, being covered with convex triangular pieces on each side.

Cicadians do not leap. The legs are short, and the anterior thighs are armed beneath with two stout spines.

Cicada Septendecem, (of Linnæus,) or Seventeen-year Locust, in the winged state is black, wings and wing-covers transparent, the thick anterior edge and larger veins of which are orange red, and near the tips of the latter there is a dusky zigzag line in the form of a W; the eyes are red, the rings of the body edged with dull orange, the legs of the same color. The wings expand from 2½ to 3¼ inches.

The female lays her eggs upon a small branch of a tree, which she pierces obliquely to the pith, and by a kind of sawing operation forms a longitudinal fissure, of sufficient extent to receive from ten to twenty eggs. This process occupies some fifteen minutes, and several fissures are made in the same limb. The Cicada thus goes from limb to limb and from tree to tree, till she has deposited some four hundred or five hundred eggs. She thus becomes exhausted, and soon dies. The insect abounds most on the oak, but occasionally resorts to other trees and to shrubs, and not unfrequently to fruit trees.

The eggs are one-twelfth of an inch in length. They are hatched in 52 days after they are laid, according to Dr. Potter, and according to others in 14 days. The young insect is one-sixteenth of an inch in length, yellowish white, eyes and claws of the fore-legs reddish, grublike in form, with six legs; on the shoulders are little prominences in the place of wings, and under the breast is a long beak for suction.

Some of the habits of the young insect are very wonderful. Soon after they burst the shell of the egg that contains them, they move to the side of the limb, and voluntarily drop to the ground. Thus they bury themselves in the soil, attaching themselves to succulent and slender roots, on the juices of which they subsist. After a time they gradually ascend to the surface, and live in their burroughs or on the surface, according to circumstances, till they shed their pupa skin and change to perfect insects, which are soon strong enough to fly. A good description of this insect was given by a correspondent in our October number, page 205.

Cicada Canicularis, or the Dog-day Harvest Fly, so called from its appearing near the commencement of dog-days, is also musical. This is sometimes mistaken for the

Cicada pruinosa, or Frosted Harvest Fly, found in the Middle States. Neither of these species is numerous enough to produce much injury to our harvests.

Tettigonia vitis, is an insect that has proved to be very destructive to grape vines. It is one-tenth of an inch in length, pale yellow or straw color, with two small red lines on the head; the back part of the thorax, the scutel, the base of the wing-covers, and a broad band across the middle are scarlet color, tips of the wing-covers blackish, with little red lines between the broad band and the tips. The head is crescent-shaped above, the eyelets just below the ridge of the front.

They are found on the under part of the leaf through most of the summer, first appearing in June in the larva state, and destitute of wings. They generally remain quiet, their beaks thrust into the leaf, but if disturbed they leap nimbly from one leaf to another. They often cast their skins. They arrive at maturity in August.

The leaves thus attacked become yellow, and then dry, and the injury extends to the fruit and to the growth of the wood.

In the autumn they retire for shelter beneath fallen leaves and tufts of grass, remaining there till spring, when they emerge from their hiding-places, deposit their eggs, and die.

Fumigations with tobacco, beneath a movable tent placed over the trellis, insures their destruction; but it may be necessary often to repeat the process.

TOADS. (Bufo vulgaris.)

From the earliest recollection of the "oldest inhabitants," this little creature has been under the ban, a source of terror to every little miss, an object of disgust to maids and matrons, a by-word and term of reproach for every old aunt and grandma in the land, who would never seek farther in their vocabulary of opprobrious terms for a suitable name for any little urchin, than to call him a "little nasty *toad*." Boys have made it their sport, have pelted it with stones, pierced it through and through with sharp sticks, substituted it in the place of a ball, upon a bat-board, throwing it high in the air, and exulting in its torture; and even men in the field, hoeing their crops, have been wont to rudely thrust it aside with their hoes, as a useless reptile, wondering for what purpose such a loathsome object could have been created. The toad has been accused of being a venomous reptile, a fit object of dread, a poisoner of choice garden plants, deserving banishment from every one's premises, and fit only to inhabit an *uninhabitable* morass or desert. The toad has, however, occasionally been brought into respectable notice by curiosity hunters, and newspaper paragraph writers, whenever he has chanced to have been found in a torpid state in the cavity of a rock, or in the trunk of a tree, in which cases, an antiquity has been ascribed to it equal to that of Egyptian mummies, or perhaps set down as of antediluvian origin. In this manner, poor toady has gone the rounds of newspaper notoriety, not for any merit or value it might have possessed, but as a matter of mere curiosity. But this poor and despised creature has not been left entirely friendless, nor without an advocate.

Naturalists have placed him in the scale of usefulness where he belongs, and have shown that he is not deserving the very many opprobriums that have been heaped upon him.

To the gardener, the toad is a very useful assistant, as it devours a great many insects and worms that prey upon the plants. In the darkness of the evening, the toad comes forth from its hiding-place, and commences its work of extermination. Noiselessly it passes through the garden, regaling itself upon the insects that have just begun their nocturnal work upon the tender plants. No one but those who have observed the movements of this little animal, can form any correct estimate of its usefulness. A few evenings since I watched one a short time, and observed that in the space of fifteen minutes, it devoured some fifteen or twenty insects, of that class too, that in the day time, lie concealed from the observation of the birds, but at night go forth in armies to carry on their work of destruction, to lay waste the gardener's toil. It would be a matter of economy for those who till the ground to provide the toad with a suitable place for retreat in the day time, thus virtually saying to him: "My dear little fellow, I value your services, and will do all I can for your comfort."

With proper appreciation for his services, and care for his preservation, the toad will become quite domesticated, and will continue his valuable work for years, simply for his "board and lodging." Those who wantonly destroy the toad, should be classed with those who kill harmless and useful birds.—*Ohio Farmer.*

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

POLICY OF COTTON GROWERS.

Dear Sir:—On 189 page of Sept. number you have an article from the Mobile *Advertiser* on Cotton Manufacture in the South.

I do not think the produce of cotton to be "*too great*," but I know the price is not remunerative to the grower. How we can remedy is an afterthought, and may not be known and adopted for years. The disparity between profits to the producer, the carrier, the manufacturer and the seller of manufactured goods is too great. The commission merchant who only charges the *small* pittance of 2½ per cent. will in a very few years have his marbled halls and "ham boiled in champagne," whilst the vast bulk of the growers may live in their *log cabins* and live upon middling corn bread and greens. The manufacturer making his "five times as much for converting the cotton into cloth as the farmer for producing the raw material" soon becomes a millionaire, whilst the producer and his operatives are under the ban. Until producers know and act upon, that "mind makes the man, and the want of it the fellow," until we educate and become self-acting and thinking beings, this will continue. We see it in every other position in society, and why not here?

There are two things in my humble opinion that will greatly aid the planter, and as much aid our whole country. The cotton planter and his negroes are now as much needed in America as any branch of business, as any other operatives. Was the South to devote its energies to producing grain, meat, wool, mechanics or the navy, how long would it be ere the North would feel the need of her manufactures?

What I now propose I have before done, and one of them many years ago, viz., Planters to restrict sales of cotton to one-eight or one-tenth of the crop per month. If sent forward, which is best for the mass, prohibit selling as now, in the short period of about 120 days. The other, to connect with the ginning machinery, the spinning of a portion, at least, of our crop. This matter was suggested some ten or twelve years ago, hoping that some large planter of enterprise would give the subject thought. It was reported a few years ago that a large Louisiana planter was building for this object, but he was taken away ere he had his buildings.

The continent draws from England largely of twist, which can be supplied by the planter, and thus realize at least two prices for capital and labor employed. The capitalist buys our cotton in the three or four last months of the year and holds until the manufacturer needs, then usually makes his profit and interest. If the planter will hold for the manufacturer he can demand the profit and interest. If the pork producer or the flour producer would ship to New-Orleans in the short space of three or four months the supply for the year the quantity alone would depress the price. They know this and send forward as demanded, whilst the Southern cotton, sugar, tobacco and rice planters push in as early as possible—the factors advise rapid sales—the want of the "golden egg" as soon as possible, to double, by long shares, causes in part this counsel.

If only one-half the planters will attempt either or both of these, it is my conviction that ere five years profits would be more equable and the million clothed cheaper. The demand for cotton if not backed up by the millionaires must much exceed our crops. The profits by the manufacturers and salesmen are too great, and thus debar a larger use of cotton and fabrics. Cotton worth 10 cents per pound when costing 5 cents to spin will sell for about 20 cents, and thus pay a large profit, even double that of producing, for the increased capital needed to spin 100 bales on an unsettled plantation would be small. The young and old negroes could be employed say 4 or 5 months at least, as the clearing and improving would justify. These are mere hints for wiser heads to elaborate. Yours, etc. P.

FRENCH DECIMAL SYSTEM.—In our last issue on page 199 our printer made us say that a deca-metre =.03937 inches. We wrote this of the milli-metre. It was interlined in the copy, and inserted in the wrong place. Please make this correction in the margin of your copy, or place the decimal point after the 9.

FATTENING ANIMALS.

Certain facts on this subject are uniform and perfectly well settled. Others are very inconstant and appear subject to no uniform law. Some well-known facts are of very easy explanation. Others seem to contradict ordinary principles of philosophy. Indeed, this department of physiology, if it deserve so worthy a name, partakes of the imperfections and doubts attached to many theories.

We use the *conditional* "if," for we are not quite willing to admit that a system, the entire object of which is to produce an abnormal, that is, an unhealthy, diseased action in the animal, is a part and parcel of any true philosophy. Would it not be worse than ridiculous to pretend to arrange into a science the means and modes of producing all manner of diseases! As a counterpart to its opposite, it may be admissible, giving clearness and emphasis to it. By itself it would be absurd. It is or should be regarded like that part of a mathematical demonstration which shows that the opposite of the point to be proved is absurd. By itself, it is not demonstration. It only prepares the way for actual demonstration. But this is of little moment. We must come to our subject.

Some principles and facts, as we have said, are well settled. Carbonacious food promotes the deposition of fat. Nitrogenous food produces muscle, with its natural and healthful proportion of fat, which is, indeed, very small. Wild animals are never fat, with the exception of those who lie dormant through the winter, sustaining life by the consumption of the fat accumulated in autumn. This is alike true of herbiverous and carniverous animals. Those examples of domestic animals, as dogs, etc., who grow fat, are of no account, as their entire habits, both of eating and of living, are artificial. So also the wild animals of particular districts, who have access to some peculiar kind of food, are of no authority in settling general facts and principles, though they are very important in showing the effects of that kind of food.

Again, the formation of fat is very much akin to the secretion of milk. Hence it is that great milkers are seldom fat, and are not easily fattened. So it is also true that cows becoming fat, generally give a diminished quantity of milk. If we would fatten a cow, it is desirable to begin by drying up her milk.

Other facts seem to contradict received theories. We have more than once alluded to the fattening properties of turnips. It is well known, and a constant practice in England, that cattle are fattened upon turnips and hay, the latter being fed in moderate quantities and of inferior quality. What received theory explains this?

We do not remember any careful experiments to determine the connection between the quality of the milk and the condition of the animal, although general statements are abundant; but if such were made, we apprehend the results would be very diverse. Some cows are lean because they convert all their fatty feed into butter, etc., which is secreted in and is a part of the milk. Other lean cows give very mean milk because their secretive organs have an imperfect action. Some cows are fat because they convert all the fatty elements into solid deposits of fat, while the milk is almost destitute of cream. Others still may not possess the power of converting these elements into anything, but reject them with other useless and effete matters.

We do not believe that any two animals would give precisely the same result, under such a course of experiments. Physiological phenomena vary like human countenances.

Facts which are well settled ought to be understood and acted upon. Those who experiment on these and kindred points ought not to waste their time and labor, and mislead the public, as many have done, by unphilosophic experiments, or by carefully managed experiments in peculiar or unnatural circumstances. For example, if a cow has been accustomed to roam at large and is tied up in a stable, and deprived of all exercise, no experiment in fattening her is reliable. She may be fretted by the mode of confining her, or she may be discontented and uneasy for loss of company, or the sudden change in her habits may have a material influence, or the food given her may be that to which she is unaccustomed and for which her digestive organs are not prepared, or the quantity may be improper. Some animals require more food than others, though of equal weight. So other causes of error may exist. Hence although all positive arrangements may be as they should be, in a given experiment, the neglect of some other conditions may be fatal to its value as a representative of a class.

Certain differences, of little apparent consequence, are often test points. Thus, raw, sour apples are not valued much as feed for fattening hogs. When cooked they are very generally approved. Boiled potatoes are much more efficient in this way than raw potatoes. Some exercise is necessary for the health of all animals. Too much is fatal to any effort to fatten. These and such-like cannot be safely overlooked in any experiment on this subject. So too a given amount of exercise may, under the circumstances, be excessive, while it would be only moderate for another of more roving habits, although this might perhaps be regarded only as a source of discontent. But we do not believe this is of so little importance as seems to be supposed. In the human species this is an essential point. Why may it not be with all animals? Shut up a person, long accustomed to much society, in a room by himself, or from which only certain persons are excluded, of what value would any experiment be in relation to digestion, appetite, and even general health? And it should not be forgotten that natural propensities and instincts are quite as strong in brutes as in men.

So too warmth of temperature has an important influence in the fattening of animals. A cold temperature requires an increase of food, and *vice versa.* It is therefore difficult to fatten animals that suffer from cold. Even when fattened such exposure consumes the fat and diminishes their energies.

We have much to learn on this subject, but we fail in making a practical use even of what we do know. Perhaps it is because we consider the truths as of small importance. For example, carding a cow daily as one would groom a horse is, and is admitted to be, always useful. But how sadly this treatment is neglected. It is as valuable to the cow, so far as her good condition is involved, as it is for the horse. And yet even few hard-working oxen are properly cared for in this respect.

CENSUS OF ROXBURY.—Whole number of inhabitants 18,699: Ward 1—4242; 2—1960; 3—5161; 4—2853; 5—2494. In 1850 the population was 15,012; increase in five years, 3687.

SHORTHONED CATTLE VERSUS LONGHORN, HEREFORD, DEVON, SUSSEX AND SCOT.

SIR:—If memory serves me right, in the year 1816, I saw tried or fed together, for two years, a three year old shorthorn Durham, valued at £20; a three year old Rollwright or Bakewell longhorned steer, valued at £15; and a three year old dun Highland Scot, value £12—all equally good of their kind. The first winter they lay out in the open air—no hovel or cover for them to go under—in a close three miles from Boston and about one mile from the sea, and wintered upon nothing but hay. The following summer they were grazed upon first-rate land together; and the second winter they lay again in the open air, in the same field as they were before wintered in, with 7lb. of cake per day each, with some strong coarse hay; and they were grazed in the same close as the summer before, without cake, until the last week in September, when they were sent into Northamptonshire, and fed under cover, and had 14lb. of cake per day, until they came to the great Christmas market in Smithfield, where they were sold; the shorthoned ox making £82, to Mr. Somers, of Somers Town, weight 151st. 6lb., of 14lb. in the stone. The longhorned ox sold for £52 10s. to Mr. Parmington; weight 99st. 11lb. The Scot was sold at £45 to Mr. Parden, weight 86st. of 14lb. The three above oxen was exhibited the last year at Boston Fair, on the 4th of May, and at Peterborough Fair on the 2d of October, with seven Lincolnshire oxen of the old Turnill breed, for which the owner was bid £60 each, or £420 for the seven Lincolns, before they had eaten Linseed cake. I saw weighed, in the spring of the following year, a gigantic worked Lincolnshire shorthoned ox, a very large old-fashioned longhorned ox (not worked), a very fine boned smart North Devon worked ox, and a great polled Scot (not worked.) They were all good of their kind, and in a lean state when weighed, and were all grazed in one field of first-rate land, near Boston, for 24 weeks, when the shorthorned Lincoln ox gained 36st. of 14lb., which was 15 per cent., the most weight; the giant Sussex ox next; the longhorned ox third; the handsome Hereford fourth; the great polled Scot fifth; and the North Devon being so much less in frame and bone, gained the least weight in 24 weeks' grazing. I am satisfied that the North Devon consumed much the least food.

It is to be found in many of the files of journals that Mr. Coke, the late Earl of Leicester, tried an experiment with a gigantic shorthorned ox of the old Teeswater kind, against two fine-boned handsome North Devon oxen of the same age. They were fed in the stalls for a long time, and the food weighed to them, until the shorthorned ox had gained 100 stone in weight, and the two Devons together 140 stone, but upon investigation, it is said, Mr. Coke found that the giant shorthorned ox had consumed a little more than both the Devons. "Gigantic animals," said Mr. C., "have gigantic entrails, and it takes a gigantic quantity of food to fill them." The trial proving in favor of the Devons, is said to be the cause of Mr. Coke breeding North Devon cattle. I knew a Lincolnshire-bred ox, with a dip of the Durham in him, in 1815, that gained 50 stone of 14lb. in 46 weeks, fed upon grass and plenty of Sweede turnips only, for more than half the year. The weight of this ox was 140st. 8lb. of 14lb. to the stone; slaughtered by Mr. Somers, of Somers Town.

It was proved by Mr. Bakewell and many other clever men, that great, coarse, large boned animals consumed much more food than fine boned, high bred animals, which have greater propensity to fatten. It may easily be proved whether Mr. Coke's bailiff's evidence or statement was correct in the three oxen's weight of carcass and food, because any breeder may try the experiment with a shorthorn and a North Devon. It is worth trying.—*Corr. London Farmer's Magazine.*

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

BEETS—BEET-SUGAR.

Mr. Editor:—The beets of the New-York market are of a very indifferent quality. They are of two kinds, the round and the oblong. In comparing them with those of Europe, they are very inferior. A beet root in France weighs two and four pounds or more, and such growth might be attained here, if it were properly cultivated.

The beet root of France is not only larger, but sweeter. There are two kinds, the red and the white. The former are used exclusively as food, the latter in the manufacture of sugar. Both extend their growths and ripen above the surface.

We will not treat of the red beet, which is used as food, but make a few suggestions upon the white, which has a shade of yellow, and which is used in the manufacture of sugar.

It is well known that the prohibitory system of Napoleon I. in France, occasioned the introduction of beet sugar. This form of industry has now become so extensive in that country, that to protect its colonies which had furnished cane sugar, and which could not compete with the beet root sugar of France, it was found necessary to establish an impost upon the native sugar, which was sold at a higher price than that of the colonies.

The yellow beet should be cultivated in a good soil, well manured, the roots being grown a foot from each other, and all weeds kept down. When it commences to ripen, the tops should be cut. These tops are eaten readily by cattle, and are useful in the production of milk, when fed to cows.

Beet roots destined for the production of sugar should be kept in a dry place, and protected from the cold.

In sowing beets for this manufacture, the cultivator may use profitably a machine similar to those used in various parts of the country.

The white beet root, if it were cultivated in Old England, would compete successfully with the sugar manufacture of the South.

I will now point out to the farmer the means by which he can furnish a substitute for imported sugar in his family:

Take the white beet root, wash it clean, grate it to a powder, and then press the juice from it. Place it over a fire in a copper kettle. Heat it just to a boiling point, so that the bubbles will rise to the surface, constantly stirring it with a wooden spoon, so as to secure it from being burned, without removing it from the fire. If heated too much it will burn, and have a disagreeable taste. When cooled, you will have an excellent syrup for common family use, and by care, the process may be continued, until it is sufficiently reduced to form sugar when cool.

To improve this syrup, for particular uses, it may be clarified by filtration through powdered wood charcoal This will delay its fermentation. It is necessary to be very careful in cooking the juice to skim it well.

The residium of the beet root, after the juice is expressed, is very useful for cows, producing large quantities of good milk. At the sugar factories at St, Maur, near Paris, this material is sold to persons in the country who raise stock, and is regarded as a very nutritious kind of feed.

Try it, and you will see its results. SANIEWSKI FELIX.

[Translated from the French manuscript by M. P. P.]

MR. CAHOON'S SEEDLING RHUBARB.

THE editor of the *Prairie Farmer*, who recently visited the garden of Mr. B. P. Cahoon, of Kenosha, Wisconsin, says:

"Mr. Cahoon has a farm of six acres, all told, on which he contrives to get a pretty fair living, if we can judge from appearances. He divides it between pie-plant, gooseberries, currants, evergreens and flowers.

"But the pie-plant is the thing here. He has about three acres in this root, of his own seedling. It stands on ground which was a few years ago a marsh covered with alders, willows and water. Springs cropped to the surface just at its upper edge and flooded the whole region. Mr. Cahoon put in drains 30 feet apart and three feet deep, and covered them. They were made of four pieces of timber. The whole was given one coat of manure and no more; since which it is dry enough for a wet time, and wet enough for a dry one, and will produce anything which is willing to grow on reasonable land. Such masses of pie-plant never grew on any soil before We counted on one root fifty-five stalks, of which the largest was two feet in length from root to leaf, and would girt eight inches or more. The others were of all sizes down to fifteen inches in length, and an inch in diameter, though the average would be twenty inches long and four or more in circumference. The root was not an unusual size, and was only an average of those which have stood three years and allowed a fair chance. Mr. C. showed us a stalk preserved in spirits which is five and a half inches wide, by 27 long.

"These large stalks are commonly flattened, but the rest are not so by any means. We saw on the same root stalks as round as a rifle barrel; some of them were three feet in length and an inch and a half in diameter, while others would be flattened so as to be twice as wide as thick. Nor do they preserve one color: some are green, some reddish like the Victoria, and some speckled with a purplish red like the eggs of a turkey. We are satisfied that nobody can tell a pie-plant by looking at the stalks and leaves, without knowing more about it.

"Mr. C.'s mode of culture is to set the rows five feet apart and two feet apart in the rows. At this distance they cover the ground in a single season. He has set 3,500 plants this year, commencing the 10th and ending the 15th of May. He cuts about three days in the week, cutting about four or five hundred pounds per day. He puts up in boxes or bales, and sells in Milwaukee, Chicago, Detroit, Buffolo, or elsewhere—getting about $4 per 100 pounds. The cutting is continued till frost comes. In cutting he is guided by judgment, taking all from a plant he thinks it can spare, and going over the same ground 5 or 6 times in a season. Then in spring and fall he makes sale of roots. He sold last spring 2,500 roots or more.

Fall Plowing, or Buckwheat to kill Wire-Worms.—We take the following from A. C. Dickinson's Address before the Cortland county (N. Y.) Agricultural Society.

"Ploughing in the fall is to become more fashionable than formerly, as I regard it as the best and only sure remedy to destroy the wire-worm which has made, and is making, sad havoc of almost every kind of crops, wholly destroying some. Ploughing late in the fall will not kill all, but most of them. In three years I think they may be nearly or quite all destroyed, and it is the only remedy I know of to destroy the most mischievous and ruinous insects the farmer has to contend with. I have heard it said that five bushels salt to the acre would destroy them, or one hundred bushels of lime. I have tried both, and sowed ten bushels of salt to the acre, and they only laughed at my folly. I tried one hundred bushels of lime as recommended, and they fattened on my bounty. I have only proved one remedy for the rascals, and that is to break the sod and sow it to buckwheat; plough late and as often as possible in the fall, and then sow it to peas in the spring; with the like ploughing next fall they will not destroy any crop next season.

Trial of Agricultural Machines in France.—The trial of agricultural implements and machines, on exhibition at Paris, has been had before the Grand Jury on the farm of the Postmaster General, M. Dailly, at La Trappes. Many of the great men of Europe were present, as were many eminent Americans—ex-President Fillmore among the number. The experiments consisted of drainage machines, ploughs, thrashers, sowing machines, reapers, and mowers.

Hundreds of machines were tested, and for the minor ones, the English carried off two-thirds of the honors; but the great interest was felt in the reapers and thrashers. The contest with the former was among the Americans; they had the whole field to themselves. Manny's, Wright's, (Adkin's Automaton Raker,) Hussey's, and McCormick's reapers, were tested together. The latter came off victor. Four thrashing machines were tried, and six men with flails, to test the difference of the labor. "Pitt's American thrasher secured the prize." The six men thrashed 60 litres of wheat in thirty minutes; Pitt's machine 740 litres; the English machine 410; the French machine 250; the Belgian machine 150. In these trials of reaping and thrashing machines America stood singularly preëminent.

STATE FAIRS.

KENTUCKY AGRICULTURAL SOCIETY—SIXTH EXHIBITION.

This fair is pronounced as very successful. Kentucky stands among the foremost for fine cattle. Those of Aitcherson Alexander, Esq., of Woodford, are spoken of with especial commendation. A new variety of hemp, grown by Wm. L. Vance, Esq., of Woodford Co., was shown, the stems being upwards of twelve feet long and average but a quarter or half inch in diameter at base. The seed was procured in France. It requires a season of five months.

The sheep were fine, and mostly of the Cotswold and South-down breeds. The hogs were Yorkshires, Irish Grazier, and Suffolk breeds. The Grazier is said to be the favorite in that region.

The third day was devoted to the exhibition of horses, mules, etc. The horses in harness, matched horses, and mare colts under one year of age are described as making a capital show.

NEW-YORK AGRICULTURAL STATE FAIR.

The correspondent of *The Boston Traveller* discourses thus unceremoniously in relation to our State Fair:

"The State Fair yesterday was visited by upwards of 20,000 people, and should the weather continue fine to-day, it is calculated that nearly as many more will be on the fair grounds as yesterday. The receipts now foot up $6,200, and the managers confidently expect them to finally amount to $10,000. The premiums awarded will be nearly $8,000. Last year, at New-York, the receipts were $9,000; the premiums about the same amount as this year. The south-western counties promised last year that when the Fair was held in their midst, they would do better than had heretofore been done in any other section of the State; but they have only redeemed their promises so far as the pecuniary attendance is concerned.

"The displays of Butter, Cheese, Honey, Soap, Vegetables, Grains, and in fact all the agricultural products of a farm would have disgraced a county fair, consequently in a State fair were of little account. What would be thought in Massachusetts of an exhibition supposed to contain the products of the State, in which the whole assortment consisted of one specimen of Beans, one of Flour, two of Honey, six of Butter, (all from one county,) six of Potatoes, one of Sweet Potatoes, two of Beets, two of Soap, three of Tomatoes, one of Water and one of Citron Melons; no Peaches, no Grapes grown in the open air, no Flowers except Dahlias; in fact the only things fully represented were Apples, Pears, Squashes, Pumpkins and Cabbages, besides some beautiful Grapes from the hot-houses of the Messrs. Hovey, of Cambridge, and to New-Yorkers it was a painful thought that at the Annual Fair of their own State they should be indebted for the most creditable display of several of the products of the nursery to a concern from the little barren State of Massachusetts.

"The horse stock of the South-western counties is nothing to boast of. The Floral Ball takes place to-night, and the ladies riding and driving match to-morrow. The fair is attended by the usual concourse of outside exhibitions.

"As regards the morale of State fairs very little can be said favorably. The scenes of vice introduced into the rural districts, by the hangers-on, or followers of all exhibitions of a public nature, I believe do more real injury to the inhabitants than the benefit derived from the display of Agricultural and Horticultural stock will ever compensate for, because the injurious effects fall almost entirely on the young, inexperienced and verdant, who do not expect to be benefitted by the exhibition, but make the occasion one of display, in other words they consider it a first-rate chance for a frolic."

We publish the above as we find it, and would invite attention to the latter paragraphs, not to endorse or to deny them, but to warn "all men" to take care how they give occasion for such statements. The show of the finest cattle is a mean item to offset against the tarnished virtue of men and women.

We have read more than once, severe censure against the practice of a contest among female riders on such occasions. No sensible parent could suffer a daughter to enter such an arena. In its utter unfitness for female modesty, such public display is second only to the race-course, and should be avoided as such by all respectable females.

The following account is an abstract from the *Rural New-Yorker*, and is more favorable, and *perhaps* more just:

"Compared with former shows, it was universally pronounced superior in the variety and quality of animals and articles exhibited, and number of spectators present, to any fair held by the society since that of 1851, at Rochester.

"The stately and dignified short-horns were well represented; of Devons there was a fine show, though some of the best herds were unrepresented. The Herefords were present in greater numbers than usual, we think, though never very numerously represented heretofore. The Ayrshires do not appear to gain in popular favor, or at least are not largely represented at our fairs. Of Grade and Native Cattle there was neither so large nor fine a display as we had anticipated—the farmers of the Southern Tier having apparently neglected to enter the arena of competition. The Fat Cattle shown, though not numerous, were superior, and attracted much attention. The Genesee Valley sustained its high reputation.

"Sheep of the various breeds were well represented. Of some there was not a large show, but it comprised many superior specimens, especially of the Essex and Suffolk breeds.

"In Agricultural Implements and Machinery and Mechanical Tools and Inventions generally, the display was one of the largest and finest we ever witnessed at any exhibition. This department was not only very complete in the variety it comprised in the several branches, but the new and improved implements and machines presented—the perfected inventions of former years, and the novelties recently introduced by the active brain-power of the 'Universal Yankee Nation'—demonstrated decided progress in the production and perfection of labor-saving machinery adapted to the most important operations of Agriculture and Manufactures. The contrast between this and former exhibitions was highly creditable to the numerous inventors and manufactures who contributed the results of their skill and industry, while it must have been most gratifying and satisfactory to farmers and others interested in this important branch of improvement. Columns might be filled in enumerating and describing the more important and valuable machines and implements, but want of space compels us to omit or defer mention of even the most noteworthy.

"Floral Hall was the especial attraction of all devotees of Flora and Pomona, and thousands of 'the rest of mankind.' It was most tastefully arranged and contained a large and magnificent display of Fruits—one of the best, if indeed it was not *the best*, horticultural exhibitions ever made by the Society. Of Apples, Pears, Plums and Grapes, the show was in all respects superior, and received, as it merited, universal admiration and commendation. Hovey & Co., of Boston, exhibited 210 varieties of Pears, while Ellwanger & Barry, and A. Frost & Co., of Rochester, were large contributors. But we cannot particularize. The display of Plants and Flowers was also creditable, while the arrangement of the whole was in excellent taste. The most attractive feature was the fancy Floral Designs representing various counties of the State, mostly in flower and evergreen work. The idea is a novel and happy one, and worthy of future attention. Of these emblatic designs we may give some descriptions hereafter.

"The department embracing Domestic Manufactures, the Dairy, etc., was *not* highly creditable, nor what might reasonably be expected from the location of the exhibition. The Poultry show was decidedly meager, and we saw none so *feverish* as to do it reverence."

ANNUAL EXHIBITION OF THE PENNSYLVANIA AGRICULTURAL SOCIETY.

The Fifth Annual Exhibition of this Society was held at Harrisburgh 26th, 27th, 28th, and 29th of September. The arrangements on the ground were more complete than at any previous exhibition. The shedding for stock was more than sufficient for the purposes of the exhibition, as the display in this department, although there were many fine cattle on the ground which attracted the attention of nearly every visitor, was not large.

In the horse department there was a very large number of entries, some of them animals which would have reflected credit upon any exhibition. The display of heavy draught horses was particularly fine.

The immense buildings erected for the display of fine and mechanic arts, etc., notwithstanding their great extent, were well filled with attractive articles. Some idea of the contributions may be inferred from the fact that the avenues through the building, if extended through a continuous line would have given a single avenue of 1800 feet in length with shelving on each side for the display of goods.

In addition to these extensive buildings, there was a large circular tent appropriated to the display of seeds and vegetables which was well filled with very creditable specimens, giving evidence of the increasing interest felt in this direction by farmers. We are informed that the display was fully equal to that of last season.

Another large tent was appropriated to the display of fancy needlework, preserves, etc., and, it is said, it has never been equalled at any exhibition of the State Society. There was in this tent, also, a most tempting display of preserved fruits, etc.

A third tent was set apart for dairy contributions, flour, etc. The display of butter and cheese was small, but very excellent.

The fourth large tent was appropriated to carriages, fire engines, etc., of which there was a very handsome display.

The poultry department was perhaps better filled than any other.

A third large building some two hundred feet in length, with double avenues, was appropriated to the exhibition of agricultural and horticultural tools, and of machinery, requiring the aid of steam power to operate them; the larger implements, such as horse powers, threshers, reapers, mowers, corn and cob-crushers, etc., were all ranged in neat order around the outside of the building. There has never been a better exhibition of farm implements than on this occasion. The articles generally, appeared to be not only well made and finished, but efficient and serviceable.

NEW-JERSEY STATE FAIR.

The first Exhibition of the New-Jersey State Agricultural Society was held at Camden on the 18th, 19th, 20th, and 21st of September. The grounds selected were most appropriate for the purposes of the Society, and were in themselves a feature worthy a visit. Although the display in some of the departments was not as full as it should have been, it will be recollected that this was the first exhibition of the Society, and as a first effort it was creditable in every respect.

The display of horses was of the finest character, and a very attractive part of the exhibition.

Of fruits and vegetables there was not as fine a display as there should have been. Few States are so capable of presenting a magnificent display in this department as New-Jersey, and we have no doubt but that she will give evidence of her ability in this respect another season.

The stock, although not large in number, embraced many first-class animals of the various breeds.

Of agricultural implements there was an immense number on exhibition, and among them many of the most approved kinds in use.

In the mechanical department, as in that devoted to the fine arts, domestic manufactures, etc., the contributions were sufficiently numerous and attractive to enlist general attention.

As a whole, the exhibition may be regarded as entirely successful, and the friends of the Society have everything to encourage them to persevere in the good work so auspiciously begun.

The Michigan State Fair, at Detroit last week, is reported to have fully sustained the reputation of the Peninsular State, the exhibition indicating decided improvement in both agricultural and horticultural productions. We hope to receive a definite report in time for our next number.

CONNECTICUT STATE AGRICULTURAL SOCIETY.

The Second Annual Show of the Connecticut State Agricultural Society was held at Hartford.

The exhibition, considered with reference to the character of each department, was highly creditable, and calculated to elevate the reputation of the State in regard to its agricultural resources and productions.

Of the cattle, the greater part were a mixture, more or less, of the Devon with the common stock, though some were a cross of the Short-horn. The Devons made a good appearance. We saw but two Ayrshires—a cow and heifer, owned by Norman Battelle, of Norfolk. The cow was evidently a large milker, and the heifer appeared likely to equal her, Mr. B. stated that the cow had not been dry for three years, though she had bred every year. The only Jersey cows on the field were two, owned by John T. Norton, of Farmington. The looked like good ones, and a yearling heifer exhibited by him was admired as almost a model. We may mention in this connection, that John A. Taintor, of Hartford, had several Jersey cows, just imported, in a field near the show-ground. One of them—a three year old—has received the highest prizes of the Jersey Agricultural Society. She is very fine. She has been sold to Mr. Robeson, of Jamaica Plain.

Sixty-three yokes of working oxen were shown. They were brought on the course and made the circuit, following in the rear of the horses.

The oxen were generally of good size and form, well matched and well trained. The quickness and ease of their gait was in many instances remarkable. Nor were they deficient in strength, or a faculty of using it, as was proved by trying them on a heavily loaded cart. There were some good fat cattle. The horses made a good appearance. E. B. Bishop & Son, of New-Haven, exhibited three pair of mules. One pair were driven in a barouche, and were kind and active. Another pair, three years old, bred in Kentucky, were 16 hands high, and were stated to weigh 2,350 pounds. Another pair, much handsomer and stronger made, weighed 2,000 pounds.

Of sheep, Stephen Atwood, J. N. Blakeslee and Jos. Blakeslee, of Watertown, showed specimens of their Merinos, whose reputation is so widely known. L. & A. Whiting, of Torrington, had also good Merinos. We noticed some excellent Saxons, owned by John Whitman, of West Hartford. Good sheep in this class were also shown by Stanley Griswold, of Torringford. South Downs were shown by T. S. Gold, of West Cornwall, and G. W. Chadwick, of South Lyme. Cotswolds were shown by T. L. Hart, of West Cornwall, W. L. Cowles, of Farmington, Charles Tracy, of Norwich, and others.

The show of swine was quite large, and comprised some good animals of the Suffolk breed, and crosses with it. There were also a few specimens of the Essex.

The poultry display was large, and the specimens were generally good.

The department of manufactures was well filled, though it fell short of a fair representation of the ability of the State.

The horticultural department comprised a good show of apples and pears, while there was no lack of grapes. Vegetables were numerous and of good quality.

The show of butter and cheese was the largest and, so far as we could judge by the looks and *smell*, the best we have seen at any show for several years.

OHIO AGRICULTURAL COLLEGE.

The *Ohio Agricultural College* holds its second Lecture Session at Cleveland, commencing on the first of December, and continuing twelve weeks.

FARMERS,

Whether old or young, this Institution places within your reach the means of acquiring a knowledge of all the sciences that have important relations to Agriculture. What intelligent farmer has not felt the need of such an Institution?

PLAN.

Instruction given in lectures as in Medical Colleges. Four lectures will be given daily during the whole term.

The Subjects embraced in the course are

1st. *Those that relate to the land.* Geology, Mineralogy, Chemistry, etc.

2d. *Those that relate to Plants.* Botany and Vegetable Physiology, Field Crops, Orcharding, Gardening, etc.

3d. *What relates to animals.* Comparative Anatomy and Physiology; Natural History of Domestic Animals—Veterinary Medicine, Insects, etc.

4th. *What relates to labor.* Rural Architecture and Landscape Gardening, Draining, use and construction of Implements, Surveying, Farm Book-Keeping, etc., etc.

LECTURERS.

Prof. J. P. Kirtland, Prof. Jas. Dascomb, Prof. Sam'l. St. John, Prof. J. H. Fairchild, Prof. N. S. Townshend.

ADDITIONAL FACILITIES.

A Reading-Room, supplied with the principal Agricultural Periodicals, will be open to students at all hours.

TERMS.

For the entire course, - - - - - - - - $46

Board and rooms may be obtained at $2 50 per week, exclusive of fuel and lights.

This Institution is designed to be permanent, and is therefore incorporated as the Ohio Agricultural College.

For further particulars, address the Secretary of the Board.

Harvey Rice, *President.*

Thos. Brown, *Secretary,* Cleveland, Ohio.

HINTS ON COLOR PRINTING.

The following may be of use to others besides printers. We find it in the *Photographic Advertiser.*

"To produce fine qualities of Colored Printing Inks, by mixing pure dry colors with varnish, the printer will do well to give heed to the following particulars:

"1. No more should be mixed at a time than will be required for the job in hand.

"2. Colored inks should be mixed upon a slate or marble slab by means of the muller, and never upon an iron or other metallic table. The table, before mixing, should be thoroughly clean, and perfectly free from the slightest soil or trace of other inks.

"3. For working colored inks the roller should not be too hard, and should possess a biting, elastic face. When change of color is required, it should be cleaned with turpentine, and a *moist* sponge passed over the face, allowing a few minutes to dry before resuming its use.

"For *bronze* printing, the roller should have a firm face, or the tenacity of the preparation may destroy it; yet it must have sufficient elasticity to deposit the preparation freely and cleanly on the type.

"4. Various shades may be produced by observing the following directions:

"*Bright Pink Ink.*—Use carmine or crimson lake.

"*Deep Scarlet.*—To carmine, add a little deep vermillion.

"*Bright Red.*—To pale vermilion, add carmine.

"*Deep Lilac.*—To cobalt blue, add a little carmine.

"*Pale Lilac.*—To carmine, add a little cobalt blue.

"*Bright Pale Blue.*—Cobalt.

"*Deep Bronze Blue.*—Chinese.

"*Green.*—To pale chrome, add Chinese blue; any shade can be obtained by increasing or diminishing either color.

"*Emerald Green.*—Mix pale chrome with a little Chinese blue, then add the emerald untill the tint is satisfactory.

"*Amber.*—To pale chrome, add a little carmine.

"*Deep Brown.*—Burnt umber, with a little scarlet lake added.

"*Pale Brown.*—Burnt sienna; a rich shade is made by adding a little lake as above.

"5. *Gold Preparation.*—Print as with ordinary ink, then put on the bronze powder with a broad camel-hair brush; allow the impressions to remain a short time for the preparation to set, then clean of the superfluous bronze; the impressions are much improved if passed through rollers."

RAILWAY INVENTIONS.

Our Canadian exchanges contain an account of two inventions for railway service, which meet the approval of persons in that section:

"Mr. I. W. Forbes, of this village, (Dunville,) has just secured the patents of some important improvements in Railroad Switches. We have been favored with an inspection of the model, and were astonished to find a machine so simple and complete in all its parts and arrangements. It is just what it purports to be; 'a self-acting and self-adjusting switch,' requires no attendance, no matter how many tracks or in what position the Switch is placed, the whole being under the control of the engineer of the passing train, who can adjust the Switch and place the train on any track he chooses without any regard to speed or fear of accident. It has been examined by some of the most prominent engineers and superintendents in the country, who unanimously pronounced it the most perfect machine that has ever come under their notice. The adoption of this Switch will save a vast amount of expense to such Companies as adopt the improvement, as well as prevent many accidents and losses which occur daily through the neglect and carelessnes of persons employed for that purpose.

Mr. Forbes has also invented an Alarm and Register, which is so arranged that the train cannot pass without ringing a bell, giving notice of danger of any kind or notifying that all was right, at any point of the road where required.

This invention is thought by some persons well posted up in railroad statistics to be equal to the Switch in usefulness. We cannot describe it so that our readers will understand, and therefore will only say that it is intended to be attached to the engine, and is so constructed as to ring a bell near the engineer and warn him of danger on approaching stations, bridges, or curves, and would, no doubt, have saved many valuable lives the last twelve-month had it been in use. Several cases in point have occurred on our Canadian roads last year where the alarm flags were not observed by the engineer, and fatal consequences ensued which would have been prevented; had this invention been attached, it would have warned them of approaching danger."

FIRST WATER POWER IN SILK MANUFACTURING.

We suppose that the following historical facts are admitted. Nearly the first attempt at manufacturing silk in this country was made in Mansfield, Ct., and nearly the first man in the business in that town was Mr. Rodney Hanks, who deceased some years. Mr. Hanks was, also, the first person in Mansfield, or anywhere in America, who applied water power to the twisting and winding of sewing silk and twist. Upon high land which slopes towards the east his mill was built; a dam was built across a small stream of water rising on land still higher than the mill, which was turned and compelled to work its way down to the ocean. The building and the business were small, both reminding us of the names of John and Wm. Slater, and their labors in the beginnings of the manufacturing of cotten by water power. Forty years since that water power began to wind silk, guided by the ingenuity and skill of Rodney Hanks. That mill, and the newly-invented and constructed machines in it, and the mind which devised all, are gone. A new mill succeeded on the same stream, larger in proportion and used by the father and his son, Mr. Geo. R. Hanks, for the same business. Now the second mill has given place to the third, the largest of all, which is used by father and son, Geo. R. Hanks and his son Philo G. Three mills have been operated by three successive generations of men in the same family and in the same business. During all this time water power has been used in winding and twisting silk, and during all this time progress has been made in the excellence of the manufacturing and in the amount done. The skill and knowledge of the father, acquired by experiment or study, has been communicated to the son, and his again to his son, until now perhaps the world uses no better article of sewing silk and twist than comes from this celebrated factory. The name of Rodney Hanks should stand beside Slater and Wilkinson in the history of American manufacturing, as the name of his son Geo. R. may stand by the side of Martin in the annals of silk dyeing. D.

BRITANNIA-WARE—A LARGE ESTABLISHMENT.

THE business of making Britannia-ware in our country has grown to great proportions, and its growth is still increasing in magnitude. Very much the largest establishment for this important business we suppose to be in West Meriden, Ct., owned and operated by the "Meriden Britannia Co." The establishment, whilst it has a oneness, may properly be divided into three more distinct factories. One is north of the depot, where steam power is used, and where the ware made is mostly cast, and for common use. Immense quantities and diverse qualities of ware are turned out of this shop, exciting the admiration of even traveled persons. Another factory is "over east" some three miles, where water power is used, and where ware is both cast and "spun up" in large quantities, and some of it admirable qualities. Up stairs and down, through many stories, are ponderous machines and multitudes of men, actively at work upon ware in some stage of its construction, from the rough ingot to the burnished vase or tankard. But the largest factory is "down in Wallingford," where more men are employed, and where all the ware is either rolled, pressed and run up, or is the product of all three processes of manufacturing. In this factory the perfection of the art of making this ware is seen. With engines and machines, newly invented and constructed, with many men of great ingenuity long applied, with ample means and facilities, an immense quantity of culinary and purely ornamental wares of astonishing excellence is thus turned out into the American market. Each factory has its manager. Silver plating and burnishing are done only at this place. The burnishing hall is large, and the large company of men engaged in it furnishes some of the finest countenances in the State. These three manufactories, under the name of "Meriden Britannia Co." are the largest establishment in this business on this continent. It has, too, its "commercial gentleman," who is constantly visiting towns and villages in all the latitudes and longitudes of our country, effecting sales to persons of taste and refinement, as well as to those who use this ware in common life. "Where does our ware go to?" asks the manufacturer, astonished at the quantity demanded. "Where does all the Britannia ware come from?" asks the million of users and admirers. We cannot say where it all comes from, but we can say, that immense quantities go from the large establishment of the Meriden Company. D.

THE ART OF PAINTING.

THE following recipes, prepared by a practical painter, have been sold for a dollar. We give them to our readers taken from the *Due West Telscope.*

1. *To Boil Oil.*—In boiling oil, never fill your kettle more than two-thirds, or it may run over and take fire. Place your kettle on the coals, simmer your oil till it will scorch a feather, when it will be fit for use.

2. *To Grind Paint.*—Put your paint on a large flat stone, with a smooth face, wet your paint with oil, and grind until fine. Be careful to grind fine, or there will be a waste of the paint, and your work will not look well.

3. *A mixture for drying paint.*—Take 8 ounces of sugar of lead, 8 ounces of red lead, 8 ounces of litharage, 4 ounces of umber; make fine, put them into a gallon of oil; simmer together one hour, then strain, pour in one pint of spirits of turpentine. Add one gill to one quart of paint to make it dry fast.

4. *Painting on Wood.*—In any kind of painting your paint must be of the proper consistency, your wood clean and smooth, and you must have a proper brush, or you cannot do good work. It is as necessary that a painter have good tools as any other mechanic, to enable him to make a good job. I have seen houses and other things spoiled with poor brushes.

5. *To Paint a house White.*—Mix 4 quarts of linseed oil, with one keg of white lead thoroughly. Commence at the top and paint six or eight boards at one through, using great care to lay the paint even and smooth. In putting on three coats, make the second the thickest, adding a little Prussian blue to the last coat to make the white more clear. Be careful not to use too much blue; and you must putty all the holes and cracks before the last coat is applied.

6. *Cream Color.*—Add finely-ground chrome yellow to white paint, (see No. 5,) a little at a time till the shade pleases you. You must add yellow every coat to have a good finish.

7. *Lead Color.*—Add finely ground lamp-black to white paint, (No. 5,) till the color suits you.

8. *Blue Paint.*—Prepare a sufficient quantity of white paint, then add finely-ground Prussian blue in oil. Add a little at a time, until the color is light or dark as you may want the shade.

9. *Black.*—In preparing black paint, grind lamp-black in oil; and as black dries slowly, you should add two ounces of litharage, to every pint of paint. Always use boiled oil for black, to give it a body.

10. *Verdigris Green.*—Wrap verdigris in cabbage or other large leaves, and place it on the hearth, over which scatter cold ashes, then cover with coals, let it roast one hour, remove, and when cold, grind in oil. This is not so apt to fade as other green, and is used for outside work.

11. *Common Green.*—This is composed of nearly equal quantities of Prussian blue and chrome yellow. It must be ground very fine in oil. The shade may be varied with white lead.

12. *Another Green.*—You may purchase patent green ready for grinding, which is beautiful if genuine; to be ground as other paint.

13. *Stone Color.*—Burn umber on an iron plate until it is of a reddish cast. No color looks better for a room if well put on.

14. *Stone Color of a beautiful Green Shade.*—Add to white paint, sufficient to make a light drab; then green enough to make a green shade.

15. *Orange Color.*—Combine white lead with chrome yellow in the proper proportion to make a bright straw color, then add red lead to tinge it to an orange.

16. *Straw Color.*—Number 15 makes a straw color by leaving out the red lead.

17. *Dark Stone Color.*—Add umber to light lead color, (see No. 7,) till the color suits.

18. *Blossom Color.*—To white paint add red or Venetian red, till the color please. Red lead is the best.

19. *Flesh Color.*—To white paint add chrome yellow enough to change its shade, then some red lead and a very small quantity of black, till the color suits.

20. *Best Copal Varnish.*—Reduce 2 lbs. of gum copal to fine powder and pour it into a copper kettle that will hold 3 or 4 gals., and melt it over a fire of charcoal. When the gum is dissolved, add one pint and a half of hot flaxseed oil, having removed the gum from off the fire, stirring smartly while adding the oil. When it is partly cool, add slowly 3 quarts of spirits of turpentine, still stirring. Care must be taken that the contents of the kettle are not too hot nor too cool while adding the turpentine; if too hot it will take fire; if too cool it will not mix well. Strain whilst warm.

21. *Carriage Varnish.*—Manage your copal as directed in No. 20. Use 5 pints of hot oil that will scorch a feather, add 1 quart of turpentine, and proceed as in No. 20. This varnish will not crack.

22. *Gum Shellac Varnish.*—Put two lbs. of Shellac gum into 2 quarts of spirits of wine, and shake occasionally; and when it is dissolved it will be fit for use. This will not stand exposure; it will dry in a few minutes, and answers well for coffins.

23. *Varnish to render Paper Transparent.*—Heat 2 gills of spirits of turpentine in an earthen vessel; when hot add 2 oz. rosin, and stir until dissolved. Varnish both sides of your paper with one coat, and when dry it will be clear enough to read through. Lay this paper on a picture and mark the outlines, then cut it out, paint through the hole. In this manner you may paint any figure you may desire.

INDUSTRIAL STATISTICS.

Vernon Depot, Ct.—*Phœnix Man'g. Co.* T. Tyler, agent; S. J. James and George Wilber, and others, foremen. Mill has 16 cards 24 inches; 1208 spindles. Make satinet warps, 1700 yards weekly.

Kellogville Mill, woolen. H. W. Talcott, agent; Warren Spaulding, A. A. Ellsworth, Palmerton, and others, foremen. Mill has 4 sets cards; 36 looms. Make satinets. Warps purchased.

Rockville, Ct.—*Springville Man'g. Co.* Alonzo Bailey, agent; Digby Wood, C. Winchester, Jr., Wm. C. Avery, foremen. Mill has 3 sets cards, 4 jacks, 28 looms. Make satinets. Warps purchased.

Florence Mills, woolen. George Kellogg, Jr., agent; Augustus Schwarz, John Dawson, Joseph Bailey, George Lee, foremen. Mill has 4 sets cards, 4 jacks, 38 looms. Make Union cassimeres. Warps cotton and purchased. Machine shop attached, having Edward Low, foreman.

New-England Co. Allen Hammond, agent; J. W. Thayer, superintendent; Vinton, Dimock, Van Tine, Buckminster, Thompson, Soules, and Simonds, foremen. Mill has 7 sets cards, 44 Crompton looms. Make fancy cassimeres. Machine shop attached, having James M. Fuller, foreman.

Saxony Mill, woolen. H. Selden, agent. Mill has 1 set cards, 10 looms. Make satinets.

Leeds Co., 1 mill, woolen. A. Talcott, agent; C. L. Clark, superintendent;

Albert R. Chapin, Francis Brown, and others, overseers. Mill has 6 sets cards, 40 looms. Make satinets. Warps purchased.

Rock Man'g. Co. George Kellogg, agent; A. C. Crosby, superintendent. Mill has 9 sets cards, 14 jacks, 70 looms. Make fancy cassimeres. Charles Metcalf, Jacob Guley, and others, foremen. *Old* mill attached to Rock, makes satinets. 24 looms.

American Mills Co., 1 mill, woolen. Thomas Darrow, Jr., agent. Has 13 sets, 25 broad and 36 narrow looms. Make fancy cassimeres.

Stone Mill, cotton. A. Hammond, agent; Wm. R. Ladd, superintendent. Mill has 14 cards 24 inches. Make satinet warps, turning out 2200 yards daily.

Meriden, Ct.—Factory of Charles Parker. Employ 250 hands on an average. Make all kinds of Britannia and German silver ware, vices, kitchen hard ware, builders', gate, and other hinges, locks, coffee-mills, etc., etc., etc. Office, 15 Gold street, New-York.

Factory of Perkins & Parker, owners and agents. James M. Perkins, superintendent. Make 14 kinds of hammers, and a great variety of tin and iron spoons. Works have 11 fires; 2 hammer-engines; 2 trip-hammers. Employ in all 50 hands.

Factory of Edward Miller. Employs 25 hands on average, turning out $30,000 worth goods annually. Make trimmings for lamps, kettle ears, etc.

West Meriden, Ct.—*Meriden Machine Co.*, 1 shop. Oliver Snow, agent. Shop has 35 lathes, and other tools in proportion. G. T. Snow, foreman. Foundry has 15 hands on average; Eugene Leonard, foreman. Forge shop has 5 fires, 2 trip-hammers; R. S. Gladwin, foreman. Make machinery, tools, and do job work. Make Prew's car-wheels, patented.

Meriden Lock Co. H. Curtis, agent; H. H. Elwell, superintendent; H. H. Booth, foreman. Employ 80 hands. Make builders' hard-ware, and spring balances.

Silver Plating Shop of Henry Blunt. Commodious laboratory. Does all kinds of plating.

Foster, Merriam & Co., 1 factory. Make furniture castors. Employ 30 men. Foundry attached has 20 hands on an average. Alanson Watrous, foreman.

Meriden Britannia Co. H. C. Wilcox, agent. Have 3 factories. Employ 150 to 175 hands. Make Britannia ware, fine-plated goods. Office, corner Gold and John streets, New-York. North factory has L. J. Curtis, superintendent; the East one has Mr. Lewis, superintendent; the third one is in Wallingford, Ct., and has Samuel Simpson, superintendent, Seth C. Babbitt, foreman, employing 60 hands; Mr. M. L. Forbes, plater. German silver department and rolling works, Robert Wallace, foreman. The works turn out great quantities of Britannia ware of a very superior quality.

Factory of Hanover Co., W. Webb, agent, turns out 400 dozens of ivory fine-teeth combs daily.

Cutlery Factory of Meriden Cutlery Co. J. Brackenridge, agent. Employ 75 hands, and make table cutlery.

Lock Shop of Amory Parker & Co. Employ 40 hands, and make builders' hard-ware. R. L. Webb, finisher. Foundry attached, Myron White, foreman. Power, steam and water, W. S. Coy, engineer.

Foundry of Julius Parker & Co. Hiram Richmond, foreman. Employs 25 hands. Make blinds, hinges, and scales.

Yalesville Mill. C. Parker & Co. Thomas Jerald, manager; Timothy White, superintendent. Employ 65 hands. Make Britannia and German silver spoons, plain and plated.

Parker Scale Co. H. B. Osgood, agent. Make platform and counter scales.

WALLINGFORD, CT.—*Fowler Man'g. Co.* Alma J. Hall, agent. Shop has 8 lathes, 4 planers, and other tools in proportion. Make machine tools, and presses from 20 to 160 tons power.

Fowler & Flagg, Jobbers. Forge shop has 3 fires and 1 hammer, George P. Munson, foreman. Power, steam.

German Silver Works of Hall, Elton & Co. Have 3 mills. Employ 150 hands. Turn out $250,000 worth goods annually. George W. Elton, plater. Make German-silver ware, plain and plated.

SOUTHINGTON, CT.—Factory of W. J. Clark & Co. Make nuts, washers, patent shaft couplings, bolts, etc. Business about $60,000 per annum.

Peck & Smith Man'g. Co. Wm. Wilcox, secretary; B. A. Neal, general agent; Wm. Jones, foreman; F. Hitchcock and Henry Way, jobbers; Julius Lewis, manager of old shop; B. Cadwell, foreman of foundry. Make machines and tools for tin-workers, spoons, 14 kinds of coffee-mills, grind-stone and pump fixtures, steelyards and notions. Employ 150 hands on average, 30 of whom are in foundry. Power is steam. James S. Young, engineer.

Miller Man'g. Co. S. W. Sessions, manager. Employ 30 hands on average. Turn out $40,000 worth annually. Make carriage bolts.

MANCHESTER, CT.—*Pacific Co.* C. G. Keeney, agent. Mill has 6 sets cards, 1200 spindles, 21 power frames. Make shirts and drawers.

SOUTH MANCHESTER, CT.—*Globe Mills.* J. Parker, agent; C. Cook, overseer. Has 8 cards, 600 spindles. Make satinets. Warps purchased.

Charter Oak Mills. D. H. Bidwell, superintendent. Mill has 2 sets machinery. Makes satinet. Warps purchased.

MIDDLETON, CT.—*Sanseer Machine Shop.* E. Lewis, agent. Has 12 lathes, and other tools. Make machinery, and do job work.

Shop of A. P. Bailey. Does silver plating and burnishing, and makes *sewing birds.* Sold by Stoors Brothers, No. 36 Vesey street, New-York.

Russell Man'g. Co. Has 4 mills. J. Brasselmann, dyer; Samuel Singleton, and others, foremen. Make suspenders, India Rubber, girth, boot, rein, and other webs. Turn out $200,000 worth goods annually.

Machine Shop of Wm. Stroud. E. Z. Parkhurst, foreman. Has 8 lathes, and other tools. Foundry attached, J. P. Davis, foreman. Has 6 hands on average. Do job work.

Factory of E. L. Wright. Employs 6 hands. Make eyelets.

Baldwin Tool Co. G. W. Fox, foreman of wood shop of 35 hands; S. W. Drown, foreman of iron shop, with 25 hands. Make carpenters' tools.

Factory of J. & W. Tidgewell. Employ 14 hands on an average. Make screw slide, mortise gages, printers' composing sticks, web-saws, etc. Turn out $12,000 worth goods annually.

Factory of Charles North. Make John North's patent truss and supports.

Britannia Factory of F. W. & O. Z. Pelton. Make superior common and plated Britannia ware.

Machine Shop of Nelson & Co. N. A. Parkhurst, foreman. Shop has 6 lathes, and other tools. Makes tools, and do job work.

PLANTSVILLE, CT.—*Plant's Man'g. Co.* A. P. Plant, president. Make all kinds of bolts for carriages and springs, car and coach screws, wrought cut nuts and washers, snaps for harnesses, geared coffee mills, etc., etc. Turn out $200,000 worth annually. Sold at 85 John street, New-York, and 70 Kilby street, Boston.

Stow Man'g. Co. S. Stow, president. Employ 60 hands on average. Make tin-workers' tools.

MILLVILLE, MASS.—*Eagle Mill*, woolen. S. B. Hall & Scott. Has 2 sets. Make satinets. Warps purchased. David Lamson and Hiram Whiting, overseers.

Millville Man'g. Co. Edward S. Hall, agent; Phillip Welden, James Pitts, Benj. Balmforth, and others, foremen. Mill has 14 sets machinery. Make superior fancy cassimeres.

SILK FACTORIES.

MANSFIELD CENTER, CT.—Silk Factory of James Leigh. Abiel S. Holt, foreman. Turn out 150 lbs. weekly, for sewing, fringes, etc.

Silk Factory of M. & G. C. Rixford. W. McFarland, foreman. Turn out 150 lbs. weekly. Make superior article of twist, for sewing machines.

Silk Factory of O. S. Chaffee. Turn out 300 lbs. weekly of sewing silk and machine twist, of all colors.

Silk Mill of Orlow Atwood. Turn out 100 lbs. daily. Orlow Atwood, foreman.

GURLEYVILLE, CT.—Silk Mill of George R. Hanks. P. G. Hanks, superintendent. Turn out 200 lbs. weekly. Make superior sewing silk of all colors. Make sadlers' silks, and silks for embroidery and sewing machines.

WILLIMANTIC, CT.—Silk Mill of Joseph Conant. Wm. Williams and D. P. Conant, foremen. Turn out 150 lbs. weekly.

SOUTH COVENTRY, CT.—Silk Mill of E. Hovey & Son. D. Philo Conant, foreman. Turn out 200 lbs. weekly, sewing, sadlers' and embroidery silk.

PROGRESS OF MECHANICAL INDUSTRY.

THE Bostonians are taking one step in advance of us all, in one direction, not perhaps in the nature of the service so much as in the attendant circumstances, and the excellence of its arrangements. A "magnificent building" has been erected, near the Revere House, at the corner of Green and Pitts streets, called the Gore Block, with a front of 80 feet and six stories in height. Its depth is 120 feet, and on Pitts street rises seven stories high, besides the basement or cellar. The building covers on the whole 7,500 feet of ground; and each story consists of a large hall, adapted either for work-shops or show-rooms, to both of which uses, we believe they are to be applied. The building is the property of Mr. Nathaniel Whiting, of Watertown; and the whole has been leased by Messrs. Edwards, Fernald & Kershaw, of this city, and will be known in future as "The Union Safe and Lock Factory." The two firms to Messrs. Edwards, Fernald & Co., of Congress street, and Messrs. Kershaw & Co., of Charlestown street, have amalgamated; and the joint concern will be conducted on the most extensive scale. Mr. Edwards, the senior partner, has been connected with the business ever since its commencement in 1838. The *ailés* of the building (or L's, as we Yankees term it) will form their workshop. They will occupy the whole of the lower story, and will have under them a variety of tenants engaged in different mechanical pursuits, to whom they will furnish motive power by a 40 horse power steam engine located in the basement. Two upper stories have been taken by Messrs. Bumstead & Co., of Washington street, for the manufactory of post-paper; and the fourth story by Messrs. Dicderman, for the manufacture of hat and other description of bandboxes. But in the meantime the vast space and rare accommodations of the building will be availed of by the New-England Inventors' and Mechanics Mutual Association, for a great industrial or polytechnic exhibition, to commence on the 22d inst., and continue open for a fortnight. The exhibitions will consist of a display of various mechanical inventions in the market, as seen with the machinery in operation; and we understand that it is not at all unlikely that an exhibition of the sort, at once so useful, suggestive, and interesting, may assume a permament character and find fixed accommodation in the building.

ON THE FORMATION AND ANATOMY OF HORSES.

[We have extracted the following article from an English paper, because we think it much to be desired that more attention should be drawn to anatomical structure of horses. The importance of this, in relation to animal power and utility, cannot be over estimated. The article below presupposes, perhaps, too much knowledge of anatomy and physiology for many ordinary readers; but the remarks are worthy of careful investigation. They are practical as well as scientific. In this country we are deplorably deficient in the knowledge of proper means for the improvement, treatment, and care of our horses, and domestic animals generally. In New-York—in Broadway alone—is daily seen an amount of wasted animal powers, and of thoughtless but excessive cruelty, to that noblest and most useful of creatures, the horse, which loudly cries for both thought and remedy. Crippling, fallen, and even dying horses, are ordinary spectacles on that leading thoroughfare. We are fully satisfied that most disorders of the feet are caused by unskilled shoeing and from badly-formed shoes. There are, and there should be found, the means of amendment for all this. Schools for training the shoeing-smith, in a competent knowledge of an operation which ought to be altogether separated from common blacksmithing, are much wanted. The means of scientific training in the veterinary art generally, are urgently demanded. We are utterly behind the times in relation to objects and subjects of so great import as those of veterinary science. To all communities, and in a greater degree to such as are largely agricultural or pastural, it is a science of the highest domestic and national importance. Boston, we perceive, has the great honor of having moved in this matter, by the organization there of a veterinary college. Surely New-York presents a yet ampler field, and no less calls for a similar institution.—Ed.]

Length of Chest.—Eighteen dorsal vertebræ and their intervening ligamentous pads stretch along the roof of the chest in a continuous nearly straight line, and determine its length, which is proportionately greater in horses than in most other animals. The floor is remarkably short, as will be seen by the bony part of the sternum which forms its limit. The diaphragm is inserted into the posterior end of the sternum below, and, following the lower end of the false ribs, it inclines backward to reach the last dorsal vertebræ above. This shortness of chest below, and in that part too where it is narrowest from side to side, reduces the volume of the lungs in this region. But, on the other hand, the inclination of the diaphragm backwards, and a great extent of dorsal region, add strength to the lungs where they are already widest, in consequence of the arching ribs. The horse's chest, indeed, is remarkable for capacity above. Now, it must be observed, that there is wonderful significance in this. The chest is longest where the ribs have greatest range of motion, and where such motion will not interfere with progression. In other words, the chest is most conspicuous (it is longest and widest) in those dimensions where the moveable framework composing its walls can most efficiently increase and diminish its size during active breathing. Again the chest is smallest (it is narrowest and shortest) where its outer framework becomes connected with the forelegs, and possesses least mobility. There is still another view of this interesting matter; the chest is increased in length above, at the expense of the abdomen, in order to avoid so much the more space for those regions of lung which are most active in respiration; but the abdomen is increased below at the expense of the chest, because this region contains lung of least respiratory capacity. It is also worthy of remark, that in horses formed especially for speed, the chest is proportionally more extended along its roof, and the diagram is more oblique, than in horses with heavy carcasses, and adapted for slow draught only. This line of back-bones, however, forming as it does a sort of joined beam or suspension bridge, becomes weakened if it be too long from end to end. Hence, where vast solidity, or great weight-bearing powers are needed, as in the cart-horse, a short back and round deep carcase are desirable. On the other hand, where great flexibility is required, in order that the race-horse, for instance, may bring his hind-legs far forward to secure great length of stride and propulsive power, the back must be longer. In most animals specially adapted for mere speed, the back is moderately long, and the legs (especially the hind-legs) also; these conformations are well shown in the hare and greyhound. In leaping animals, again, the back is somewhat shorter; so in a hunter intended to carry a heavy man, the back should be shorter than in a race-horse, in order to secure the needful strength. A harness horse may have a longer back than a hunter, because, if combined with good well-placed limbs, and a deep chest, it gives him freedom and length of step.

Of the Withers.—The upper external undulating "line of the back" is formed by the ends of certain appendages (dorsal spines) attached to the back-bones. The first twelve or thirteen of these incline slightly backward; the remaining six stand nearly unright. Their length gradually increases from the first to the fifth; and the third to the sixth, inclusive, are so decidedly longer than the others, that they form a very prominent eminence, which rises between and above the shoulder-blades. This elevation is called "the withers." The summits of the bones of the withers give extensive attachment to a powerful elastic double ligament, which suspends the head and neck. Each side of the withers affords insertion to muscles employed in raising the fore parts of the body upon the hind, or the hind upon the fore; they are specially concerned, too, in giving origin to muscles which raise and turn the head and neck. When the withers are low, they consequently afford so much the less space for these important fleshy masses. In the horse, the withers rise more abruptly above the general plane of the back than in most other animals, and well-raised withers with a properly carried head and neck often go together. Well-raised withers, then, constitute a "good point;" this point, however, may be more essential in some horses than in others. It is quite possible, for instance, that a racer with low withers may possess great speed, and neither hares nor greyhounds possess high withers. The famous Eclipse is said to have been lower in this part than at the rump. A racer at full speed holds his head *extended and low;* he does not require to raise the fore part of his body greatly from the ground: but it is requisite that he should cover, or be propelled over, a great space at every stride. This propelling power resides most in the hind parts, so that if muscular development be good in the loins, quarters, and thighs, mere lowness of withers is no great disadvantage in race-horses. In a hunter, again, the head ought to be carried higher, so that the fore-legs may be freely raised, and in order that he may see or "measure his leap," as he phrase runs. A horse carrying his head low, and having low withers, must step low, because the muscles raising and advancing the fore-leg act at a disadvantage. One great point in securing a good upward leap over a fence, consists in raising or holding the head and neck well up; this is accomplished by muscles acting from the dorsal spines upon the neck and head; coincident with this action, the fore-legs are raised by muscles acting upon them from above, and the fore part of the body is elevated about the same time by muscles operating on the withers from behind. The withers, then, are levers as well as points of purchase, and in proportion to their length, such is the power of muscles acting from and upon them. Again, when the withers are well raised and prolonged backward, the neck usually rises well from the chest, increased depth and obliquity are given to the shoulder, the fore-legs stand well forward in advance of the center of gravity, and greater security of action is thereby conferred. If a deep chest is added to this confirmation, the saddle will lie in the right place, and remain there almost without girths; but no girthing in the world will secure a saddle where the withers are low, and the breast shallow before.

Position of the Fore-legs.—In horses used for the saddle, and possessing a desirable conformation of this point, a perpendicular line descending from the highest point of the withers to the ground, will fall several inches behind the elbow point, thus showing that the fore-legs are well advanced. In horses used for draught, this line will often fall along the outside center of the limb, or even still further forward; this indicates an upright shoulder, which in heavy horses may coëxist with high withers. Such a formation is advantageous where great weight requires to be thrown into the collar; it shows that the fore-legs are placed backwards and near the center of gravity. Where the fore-legs stands too far under the body, we can often see the point of the breast-bone projecting forward, or advancing before the retreating shoulder. Although, however, such formation may be advantageous for heavy draught-horses, and may be tolerated, or even preferred, in coach and omnibus horses, where powers of draught are almost as important as powers of speed, yet a light harness horse, carriage horse, and hunter, should have retreating high withers; the line of which we have spoken should fall far behind the fore-leg, the point of the breast should be concealed by advanced shoulder points, in order to insure the speed, freedom, elevation of action, and forward-reaching movement of limb, which are so essential to the practical value of these horses.

Of the Back.—Behind the withers, the back is mostly slightly depressed so that the middle of this region may sometimes be an inch or two lower, than the rump. In a well-formed back, however, the line from the posterior base of the withers to the rump should be almost straight. A slight depression involves no perceptible weakness, and affords a convenient place for the saddle to rest upon. A great or palpable hollow, however, constituting what is called a "saddle back," shows that the vertebral bodies are bent greatly downward, and form a weaker line than a tight well-traced chain or suspension bridge. Accompanying this form, too, we usually find a deficiency of muscle on the back and loins, and the sides, although possibly round, are but shallow. In some horses, again, the dorsal vertebræ form a line which is concave below and convex above, so that their spines project too far upward, and render the back round or "roached," like that of a fish. Such backs are often very strong, because of being arched; still they are highly unpleasant to ride upon, and are most unsightly under harness. In heavy draught-horses, and in large carriage horses, the line from behind the withers to the rump can be hardly too straight, for such a back is strongest in bone and flesh; if the ribs joining such a back are long and well-arched, we usually have muscular loins, and a chest conveying the very expression of great strength and endurance combined. In saddle horses (hunters, perhaps, especially) a slight hallow behind well-raised withers is often preferred by some, for it gives the rider an easier and more secure seat, and does not sensibly impair the strength of this region, if the ribs are well arched. A hollow-backed, flat-sided horse is almost useless; he seldom looks well, rarely goes well behind, and is totally unadapted for holding against a heavy load when going down hill.

Variety of Carriage.—In horses which are used as hunters, hacks, or for light harness purposes generally, it is obviously important that the head and neck should be light, and carried well elevated from deep slanting shoulders and well-raised withers; by means of this formation, and this only, the center of gravity is thrown sufficiently behind the fore-legs to render their step light and secure. On the other hand, in cart, dray, or even in heavy race and omnibus horses, the shoulder should be more upright, but still very deep. This formation throws the fore-legs further backward, or under the body, and of course more directly below the center of gravity. In the act of draught, such horses instinctively depress, and continually oscillate the head and neck; by means of these adaptations, the line of gravity is brought in front of each fore-foot alternately placed upon the ground, and an available weight is thrown into the collar. How truly absurd, then, is the habit of reining up a draught-horse's head, and yet compelling him to draw a heavy weight. This practice of tightly reining heavy horses may gratify the morbid taste of those who ever seek to destroy such useful provisions of nature as they cannot learn to value. The custom, however, is too expensive and too barbarous to gain sanction in this part of the kingdom, because you know that heavy draught work requires not only a certain massiveness of trunk and limb, but is rendered easier of performance when trunk and limbs can act in concert with the unrestrained movements of a somewhat depressed head and neck. We see, then, that a light, well-raised head, an elevated, neatly turned neck, and deep slanting shoulder, are points of beauty as well as utility in horses required for leaping and rapid action; but a heavier (yet not a coarse, clumsy) head more humbly carried, and a stronger neck rising from a very deep but far more upright shoulder, have also their utility in horses required for heavy slow draught alone.—*English Paper.*

"Plough deep while sluggards sleep, and you shall have corn to sell and to keep."

FAIR OF THE AMERICAN INSTITUTE.

This exhibition is far superior to any previous one that we have seen. In the number of articles on exhibition, and the variety, and in the extent of the department of machinery it is much superior to those of former years. The statuary exhibited at the World's Fair, much of which still is there, and pictures, of which quite a number still remain in the gallery, add very essentially to its interest. The central fountain is now arranged in much better taste than at any previous time. A large part of the building is occupied with articles on exhibition.

We cannot give anything like a general view of this show, but among the many things of interest will specify the following:

STORM'S CLOUD ENGINE.

This engine deserves the attention of engineers. A new principle has been introduced into it, which is the combination of cold atmospheric air with the steam in the steam chest. The result of this is a cloud or vapor, and hence its name. The effect of this combination is regarded in different ways by practical engineers, but the calculations of all seem to be a little confused, and their prophecied results to be contradicted by facts. It has been tested by several engineers, and among others by Mr. Allen of the Novelty Works. In one of his experiments, steam alone gave 170 revolutions to a pound of coal, and with the cloud combination it exceeded 250 revolutions. All experiments prove that there is value in the combination, or, in the words of Mr. Allen, "The increase of pressure is proved beyond a doubt, and even is over 50 per cent." Hereafter we may give a detailed account of this engine, with more specific statements of the advantage derived from the use of cold air in combination with the steam.

SUCTION AND FORCE PUMP.

Messrs. L. P. and N. F. Dodge have on exhibition a capital pump, of which they are the proprietors. The piston and valves are metallic, require no packing, and have comparatively little friction. The pump is horizontal. The water enters the cylinder, upon its lower side, at each end alternately, passes through the piston-heads, and is discharged through the round air-vessel in the center of the pump. These pistons are each furnished with a metallic valve, connected in such a manner that both must operate simultaneously, one valve opening at the precise moment the other closes, so that any delay on the part of one is immediately overcome by the other; consequently these pumps may be run at higher speed than pumps generally, as the back action of the water, (water-ramming,) does not prevent the parts from performing their duty at the proper moment. The pump may have a perpendicular position by modifying the lever power. It works with remarkable facility. We may illustrate this pump hereafter with a diagram. It is also adapted to the form of a fire engine. Four men can throw a five-eight jet a hundred feet high.

FISHER'S STEAM CARRIAGE.

The merits of this carriage have been frequently discussed in our pages, and we propose to say still more of it. Visitors to the Palace will do well to examine it. Capitalists may find it a good investment; mechanics will find it a capital invention, and all lovers of the useful will be well paid for giving it a thorough examination. We have an article prepared in relation to it which will appear in this or our next issue.

PLYMTON'S SECRETARY BEDSTEAD.

This curious and most ingenious piece of furniture, now at the Fair of the American Institute, to begin with, we commend to every real old bachelor, of every age and condition, and secondly, to all who would make one room practically count as two; and thirdly, to all who would make their bedrooms look as if it were a mere library or common sitting-room; and fourthly, to all who are liable to occasions in which the whole house, except the kitchen, which should always be kept sacred to its own uses, must be turned into a bedroom. To this preamble we annex the following description:

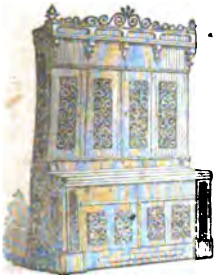


FIG. 1.

Fig. 1 represents the mechanism in the form of a handsome secretary. It is, in fact, furnished with a convenient leaf for writing, and a drawer with the necessary implements for such use.

When it is to be changed into a bed, it is turned down with perfect ease, upon a swivel, the necessary supports (legs) making their appearance in due season. The sides of the secretary form the side of the bedstead.

The front of the secretary must, however, be first removed, and when opened, discloses a well-contrived toilet-table and wash-stand, with its furniture in its own place. When the main part is turned down horizontally, the back becomes the upper part, the bed and bedding are exposed to view, and are ready to be put in order by the chambermaid. These *appurtenances* were confined in their places in part by the head and foot board and by a cord, and in part by an iron rod, which is surmounted with an ornamented ring or circle, which is intended as a support to a very handsome mosquito net. The rod is readily set into its socket. The drapery is then easily arranged. This may be a mere mosquito net, or it may be the most elegant lace curtain, presenting the precise appearance of such furniture as shown when it is suspended from a central point over the bed.

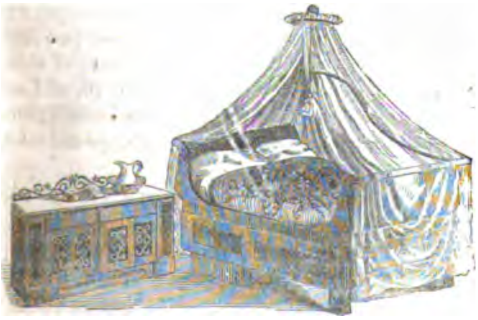


FIG. 2.

Fig. 2 represents the toilet-table and bedstead as formed by the arrangement already described. The toilet-table stands upon castors, independent of the other parts of the mechanism, and is complete in itself.

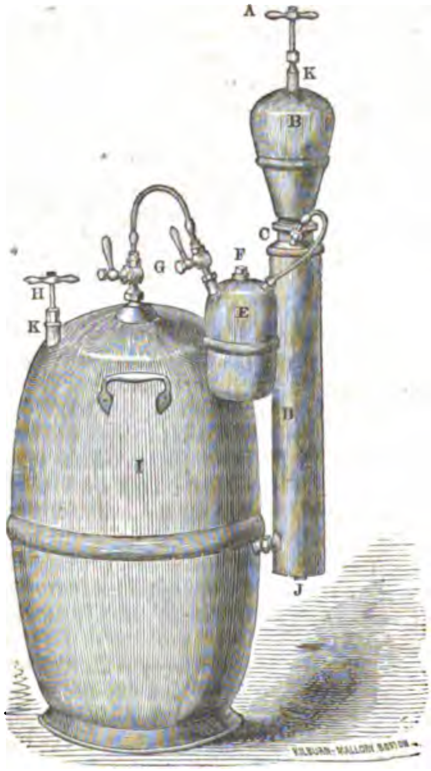
The bedstead represents a perfect panelled French bedstead. The bed is a well-made spiral spring bed-bottom, covered with a hair mattress or any other kind of bed that may be desired.

The reverse process, by which it is transformed into a secretary, is as readily performed as the other, and neither will occupy more than a single minute.

A patent has been obtained for this invention in England and in France, as well as in this country, and it cannot fail to be a very lucrative estate. The prices vary from $50 to $200. Those of $100 are very handsome. The cheaper ones are of a plainer style. We shall be very happy to receive orders for these, and do not hesitate to recommend them.

The sales-room is at 62 White street.

NICHOLS'S PATENT IMPROVED COMBINATION FOUNTAIN.



DESCRIPTION OF INSTRUMENT.

A valve rod, for letting down soda; B soda chamber, for holding soda; C valve coupling, prevents the water from flowing into acid cylinder; D acid cylinder, for holding the acid; E purifier, cools and washes the gas; F plug, for filling purifier with water; G stop cocks, for controlling the flow of gas; H agitator, for mixing the gas and water; I water chamber, holds the water to be charged; J plug, for cleaning acid cylinder; K stuffing box, makes the agitator rod tight; K ditto, makes the valve rod tight.

This is a new form of soda-water apparatus, differing from all others in very important particulars, and designed for the benefit of every dealer in true mineral water. It produces, in less than 30 minutes, without the use of wheels, force pumps, or any complicated or expensive machinery, soda-water, or water charged with pure carbonic acid gas, (made entirely from bi carbonate of soda,) at a pressure of 200 lb. and upwards to the square inch; and this is done easily without any fear of explosion, an accurate guage and safety valve guarding completely against danger.

The process of charging is very simple; the rod A is pressed down, which dislodges a portion of the soda in chamber B; upon the acid in cylinder D a quantity of gas is instantly evolved which is forced by its own pressure through the purifier E, thence into the water chamber I. This process is repeated till the guage indicates the pressure required. To impregnate the water thoroughly with the gas, the agitator H is admirably adapted, operating like an old-fashioned churn; it easily and effectually secures this great desideratum. The soda chamber B, the cylinder D, and the purifier E, constitute the generator. After the fountain is charged this generator can be detached and removed from the fountain. By removing the plug J the cylinder is quickly cleaned.

The inside of these fountains are lined with tin, and all the pipes are also of block tin. With fair usage, these instruments must continue perfect for many years. They are made of various sizes, and we understand the prices are very reasonable.

The instrument on exhibition at the Fair of the American Institute is a beautiful piece of mechanism. F. B. Nichols, 77 Pine street, is announced as agent for this city.

PORTABLE GAS GENERATORS.

Of these there are several in the exhibition. One of these is the "Universal Portable Gas Generator," R. Aubin's patent. Another is the "Maryland Portable Gas Co.'s Apparatus." The latter has been exhibited at many fairs in different parts of the country. A third is the famous "Benzole Gaslight." Whose patent this is we do not now recollect, but believe that it is not the machinery of the American Gas Co. of which we have written so often.

SHELLY'S IMPROVED CARRIAGE WHEEL,

Is formed with two felloes, one about half way from the hub to the second. The benefit of this is by diminishing the number of spokes within the inner *felloe*, to secure a stronger hub. Only half the spokes are continued beyond the inner rim. The cost is said not to exceed that of the common wheel.

ROCK DRILL.

There is a model of a very good drill, worked by crank power by one or two men, by which rocks may be drilled at the rate of three or four inches per minute. It drills in different directions, and is readily converted into a kind of hand-cart. It is a very ingenious mechanism.

HAND PRINTING PRESS.

One of the smallest machines on exhibition, prints cards, etc., quite expeditiously, while the apparatus costs only from five to eight dollars. The "form" is cast upon a lever, near the end of which is a hinge joint, and, after inking, the process consists in forcibly pressing down this lever upon a small bed beneath.

SEWING MACHINES

Of all forms are found in this exhibition. The latest we have noticed is a musical one, in which the operator plays a melodeon, and, presto, her sewing is all done at the close of the performance. This is one of young America's newest contrivances.

But this precocious young man has outdone himself in another ingenious and useful piece of mechanism. It is called

WRIGHT'S PATENT SECTIONAL SPRING BED BOTTOM.

This is a simple and convenient form of using the spiral spring, which is applied to beds and seats in various ways, and all with good results. Each style has its own peculiar characteristic, and some find ready sales at comparatively high prices. This form is cheap, costing only from five to ten dollars, and is used in connection with a mattress placed upon it, as are nearly all the other kinds of spring-beds. It does not easily get out of repair, and if any spring becomes defective in its action it can be repaired at once, without any difficulty.

CARPENTER'S PATENT CONVERTIBLE UNION CHAIR.

In its first form it is a small cradle on which a very young infant may rest on a pillow quietly and be rocked to sleep. In a second it is transformed into a very small chair, with bars across the child's lap, in which it can be, placed without danger of falling out. A third transformation, we believe is a larger form of rocking-chair, and a fourth is a "high chair," in which the child may sit at a table. Segars, etc., must be furnished by its attendants.

ENAMELED FURNITURE.

Our cabinet makers have acquired the art, within a few years, of manufacturing enameled furniture of elegant proportions and with a most beautiful surface. Mr. S. H. Warwick and Messrs. Briggs & Vickar, both of this city, exhibit in the Palace some very fine specimens of this sort.

KING'S RAILWAY WASHING MACHINE.

This important family drudge is not so recent as some other inventions we have described; but it seems, like old wine, to be improved by age. We commend the attention of all housewives to this labor-saving machine, which seems far more careful of the delicate fabrics committed to it than is often witnessed in those other machines from the Emerald Isle.

Now that we are upon these domestic affairs, we will refer to another stall in the gallery of the Palace, where Messrs. Cram & Son, of Boston, exhibit some very compact and comprehensive forms of "horses," or

CLOTHES DRYERS, FOLDING CHAIRS, ETC.

The latter may be carried out upon the common when one goes to see fireworks and "such like." They have also quite a variety of furniture of great convenience and utility.

PATENT REVOLVING-HAMMER PISTOL.

This pistol, manufactured by the Robbins and Lawrence Company, Windsor, Vt., is esteemed particularly for its very extraordinary shooting qualities, as well as for its simplicity andc ompactness of construction. The four-inch barrel is very effective at the distance of 100 yards, and in skillful hands is entirely reliable for accuracy at 50 yards and over. The three-inch barrel, though not so likely to be accurate at a long distance, projects the ball with force almost equal to the larger barrel, and at ordinary pistol distance is fully as reliable. The barrels of both sizes are rifled with great exactness; and the ball is driven through them precisely on the same principle, and with the same result as with the famous Minie ball—consequently, greater penetration of the ball, combined with accuracy, is attained, than with any other pistol carrying an equal charge. It is strong and durable, with no liability of failure in any of its parts, unless by reason of defect in the steel or iron which cannot always be detected until used. It has no liability to accidental discharge by falling or catching the hammer. The hammer and lockwork being entirely concealed within the handle of the pistol, it can only be discharged by cocking it properly. It can be capped, loaded, and fired, with greater rapidity than any other—and in fact can be safely said to have no equal in any of its points of excellence.

Price of both sizes, $12 each, put up in neat boxes with wrench and moulds.

Orders from any part of the country filled by the Manufacturers, at Windsor, Vermont.

UNITED STATES AGRICULTURAL SOCIETY.

THIRD EXHIBITION.

Our readers are apprized of the occurrence of this great exhibition at Boston, commencing on the 23d Oct., and continuing for four days. We can only give an introductory account of its transactions, which we shall resume with our next issue.

The grounds selected for the show are on Harrison avenue, and contain about thirty acres.

They are entered through a fine gateway, of imposing appearance, designed by Mr. John R. Hall, architect to the society. Two towers, each forty feet in height, support a fine arch, that spans the entire width of the street. These towers contain the treasurer's office, with twelve windows upon the Avenue front, for the sale of tickets. Upon their summits floats the American ensign.

Entering the field, we are treated to the novel and excellent feature of a vast area *graded to a perfect level.* The field exhibits the verdure of spring, being covered with oats which were sown on the land, serving not only an ornamental purpose, but a very useful one, in keeping down the dust that the myriads of feet and hoofs would otherwise create.

Nearly in the center of the field is a fine track for the trial of horses, describing in its elliptical circuit an exact half mile. Midway on "the home stretch," a pagoda-like tower, of beautiful proportions, rises to a height of seventy feet; and above it floats the American flag, thirty feet in length by twenty feet in width. The first story of the tower is designed as a gathering ground for the officers of the society, marshals and invited guests; the second story is for the accommodation of the judges.

On the west side of the track, seats for six thousand spectators are erected, in the most secure manner.

In the center of the ellipse is the mammoth tent, capable of seating three thousand persons at the grand agricultural banquet, to be held on the afternoon of Friday, 26th, when several distinguished gentlemen will address the assembled guests. To the north of this, a little in advance, is the President's tent, where the guests of the society are received and introduced to its presiding officer.

The Committee of Reception consists of Hon. J. V. C. Smith, Mayor of Boston; His Honor Lieut. Gov. Brown; George M. Atwater, Esq., of Springfield; Charles L. Flint, Esq., (Secretary Massachusetts board of Agriculture); with others.

Still further north is another beautiful tent for a Ladies' Saloon, where ices and other refreshments may be obtained. Connected with this saloon is a Withdrawing Room, for more private uses.

A tent has been specially set apart for the reporters, and every facility will be afforded them to obtain and transmit information.

The Society's Committee Rooms are established in the handsome wooden building on the northeast corner. Here are arranged tables with stationery and other conveniences for the Committee.

More than three thousand feet of stalls are covered with a canvas roof, with festooned curtains in front. Additional accommodations are arranged for sheep and swine, at the south end; and for neat stock at the opposite extremity. At these points, several ranges of tents, about one hundred feet long by twenty feet wide, are stretched, affording adequate protection from sun and cold to the animals, and presenting a picturesque appearance to the observer.

The field-management of the Exhibition is entrusted to Maj. Gen. Tyler, Chief Marshal, with twenty assistants; who appear in an appropriate and becoming uniform. In addition there is a strong force of police, under the immediate direction of the chief or assistant chief.

Very numerous entries of stock, in the various departments, have been made; and some of the most noted horses in America, and very many of the finest specimens of neat kine both home-bred and imported are on exhibition.

HORTICULTURAL.

To obtain Dwarf Blooming Plants of Nerium Splendens.—The following mode of cultivating the Oleander appeared in Harrison's *Floricultural Cabinet* for 1846:

"In April I looked over my old plants and discovered those shoots which had a leading bud of blossom; I then took a small garden pot, knocked the bottom out, and carefully drew the shoot through at about six inches below its crown; I notched the stem like a carnation, putting a bit of soil to keep the tongue open. I then tied a piece of sheet lead under the pot, to enable me to fill it with fine rich soil. I pressed the soil tight and placed the pot in a hot-house for a month; the layers rooted speedily, I then cut it off the parent, repotted into a larger pot, kept it in the hot-house a fortnight longer, which was then the first week in June, and a most beautiful bloom succeeded upon all the plants and they not more than a foot high. A free supply of water was given whilst striking root a well as subsequently."

THE OSAGE ORANGE FOR HEDGES.

Mr. H. P. Byram, the editor of the Louisville *Journal*, writes to that paper from Dayton, Ohio:

"In the vicinity of this city I saw some of the most perfect specimens o the Osage Orange that I have ever before met with—more perfect, indeed than I supposed nature could produce, even with all the aid that art and industry could lend her. The plants seem to withstand the blighting effects of this unusually dry season, better than any other species of vegetation. The leaves still present the most rich glossy green that characterizes this plant in our most favorable seasons.

"From a somewhat extensive acquaintance with the character of the Osage Orange plant, I have often pronounced it the hedge plant of America, but I had no idea of the degree of perfection to which I find it susceptible of being trained in the hedge. The oldest of the hedges here now is about four years. It is four feet high, and three feet broad at the base, and as dense, compact and uniform from the ground to the top, as if it had been moulded by hand from some plastic material. My attendant remarked that it was "so close at the bottom that a snake could not find its way through it. There were several other specimens in the same vicinity, from one to two years old, all presenting the same beautiful appearance.

"The great and only secret in producing this living American prairie fence is, *clean culture for four years, and a relentless unsparing shearing,* from the period of setting the plants to the end of four years, and then to maintain it in its proper form by semi-annual clippings."

New Rose—Isabella Grey.—The Yellow Rose of which blooms were shown at a meeting of the Pennsylvania Horticultural Society, under this name, is certainly the finest of the roses of that color which have been raised in this country. It is a Noisette of fine shape, tea-scented, and the color is deeper than that of Chromatilla, Solfature or Augusta. Having been presented by Mr. Jas. Richie, of this city, with several blooms of it, we had an opportunity of seeing it by daylight, when it appeared of course to greater advantage. It is, we repeat, by far the best yellow rose out.—*The Florist.*

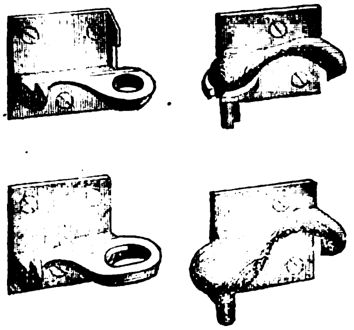
NUTMEG TREE IN CALIFORNIA.

The Calavaras *Chronicle* gives the following description of a Nutmeg Tree recently discovered in that section of the country, and which is said to be very abundant. It says:

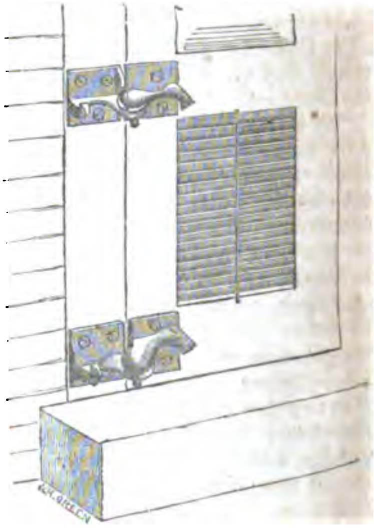
"We were recently shown by Mr. John Hanson, a branch taken from a tree of the nutmeg species, containing a cluster of the fruit to the number of seven. The tree from which these nuts were taken, was discovered a short time since by a man engaged in working on the Mokelumne Hill flume, about fifteen miles distant. There are two trees standing near to each other, very nearly of the same size, supposed to be about thirty feet in height, and the trunks two in diameter. In appearance they closely resemble trees found in the torrid zones, shooting up in a single stem a distance of twenty feet before giving off any branches. The leaves are of the most beautiful deep green on the upper side, lighter on the under, are narrow, about two or three inches in length, and are arranged alternately upon foot-stalks from a foot to a foot and a half in length. It is a difficult matter to determine by what chance these trees should, in the first place, have found their way so far from their native clime; and most strange it is how they survive the frosts of this; for it has ever been supposed that they were indigenous to the torrid zones. The nutmegs of commerce are procured from the East India Islands, principally from the Molucca group. When mature, they are subjected to a process of curation, whereby they are deprived of the power of germinating. As they are easily propagated from the seed, persons having gardens or grounds would be well rewarded by procuring the fruit as soon as it is matured, and treating it in the same manner as the peach, or any other of the nursery seeds."

PATENT BLIND HINGE AND FASTENING.

FIG 1.



THE above cut is a representation of a patent hinge for window blinds, invented by Mr. Charles Packer, of Meriden, Ct., and patented by him in letters dated April 13, 1852. The fastenings are made of cast iron; and, as seen in the cuts, they are designed to be fastened to the window frame and the house by means of common screws. In fig. 1 we have a view of the parts of the hinges as seen separately, and a glance will show how the parts come together when put to use. In the upper left hand picture of the cut a small hook is seen projecting from the iron hinge, into which a hook on the part seen on the right hand upper picture fastens itself. The same hooks are seen in the lower pictures, one reaching up and one down, each suited to hook itself into the other. When the blind is thrown open these hooks clasp each other, and no wind can unfasten the blind. But how is the blind unfastened? By the hand, which grasps the nearest corner of the blind, and, lifting it one-fourth of an inch, unclasps the hooks and brings the blind forward. But won't that hand lift the blind off the hinges? This danger is obviated by a small guard, seen in the upper right hand corner of the upper left hand picture. Fig. 2 represents the blind closed. This hinge and fastening seem very simple and complete; and they are warranted not to break in the strongest wind. The lower edge of each half of the hinge must be perfectly level, and in a straight line. The oblong eye, which belongs to the lower hinge, is furnished with a angular side, to aid the hand in lifting the blind when the blind is to be unfastened and drawn together. The hinges are so applied as to have the blind rest upon the upper and lower hinges.



The time used in hanging blinds with these hinges is seventy-five per cent. less than is consumed when other hinges are used; and it is supposed that no hand can be so unskillful as to fail to close the blind when desired. Though not a very costly adjunct to human comfort, yet a blind hinge, simple and safe, meeting the wants of the householder, may add greatly to it. We hope that the value of this new hinge may be thoroughly tested by the public.

CAR SASH FASTENER.

FIG. 1.

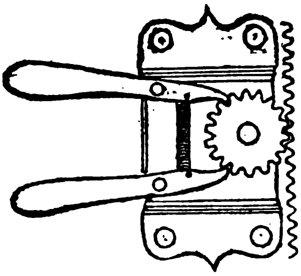
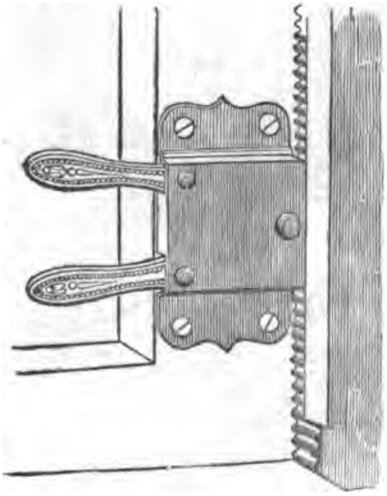
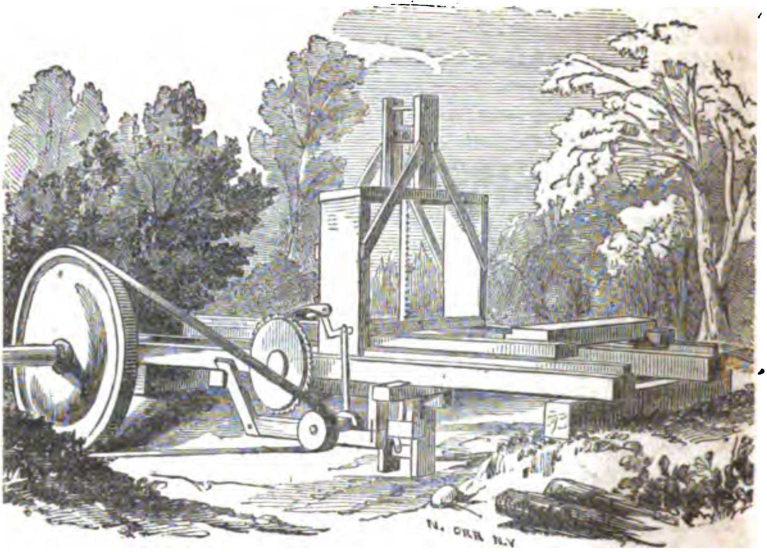


FIG. 2.



In the above cuts are two views of a new Car Window Fastener, invented and constructed by Mr. Norman C. Stiles, of Meridan, Ct., who has applied for a patent for the same, and who has now the pleasure of knowing that his plan to open and close car windows is gaining much popularity. Fig. 2 is a front view of the fastening, as seen upon the sash by the traveler. Fig. 1 is a view of the internal arrangements of the parts of the fastener. It is seen that a cog-wheel, some six-eighths of an inch in diameter, is so situated as to play into a rack in the side of the window. The cogs are long and the rack is made of brass. The wheel and the two bars fixed to act as a stop motion to the wheel, are about one-eighth inch in thickness. The bars are levers moving on fulcrums, and having the points, which intersect the cogs, drawn together by a coiled wire spring. If the thumb be applied to the outer end of the lower bar to elevate the window, the power removes the fastening and the window is elevated. If the finger is applied to the upper bar to close the window, then the fastening is removed and the window closes. One great excellence of the improvement is, that the window can, by this apparatus, be kept open at any altitude. Another is, that any person's instinct leads him to use the fastening in just exactly the correct way. No man can be found so awkward as to disarrange the apparatus, or fail to get the window open to suit him. The cost of the fastenings is about two dollars per dozen, and any information may be obtained respecting them by application to the inventor. Even a cursory examination of the engraving will show the reader that he never saw a more simple, intelligible, and convenient car-window-fastening on any window he ever attempted to open or shut.

"Pride is as loud a beggar as want, and a great deal more saucy."



FRAZEE'S PATENT PORTABLE SAW-MILL.

In new settlements a saw-mill is of the greatest importance, and wherever mill sites are to be found the value of the surrounding territory is greatly enhanced in value. Such structures, generally, are of the rudest description, and intended only as a temporary affair, to be replaced, under more favorable circumstances, with a something more efficient and more expensive.

But invention genius has not overlooked these necessities, and machinery has lately been constructed which renders it only needful to possess a few hundred dollars capital, to enable any party at once to enter a forest and commence the manufacture of lumber on the most extended scale, with an apparatus of sufficient portability to be readily removed from place to place; in fact, reversing the order of things—instead of carrying the logs to the mill, to bring the mill to the logs.

These characteristics to which we allude are contained in a saw-mill we have lately examined,* which, for cheapness, efficiency, simplicity and durability, comes the nearest to perfection of any similar contrivance that has yet come under our notice; and we feel that, in calling general attention to its superior qualities, we are performing an act that will result in almost universal benefit. This saw-mill was invented by Benjamin Frazee, Esq., of this city, formerly of Durhamville, in this State, for which he received letters patent, dated October the 18th, 1853.

Most persons, in trying to improve the structure of the saw-mill, have spent their time, money, and inventive genius, in endeavoring to study out something new for mill-dogs, saw-sets, water-wheel, etc., etc.; but it appears to have never occurred to them that the frame-work itself could be greatly simplified and cheapened, and yet leave its strength and efficiency unimpaired. The idea never struck them, that a large, strong frame, pitman and sash, could be wholly dispensed with, and still secure a powerful and effective mill; yet we have abundant proof of these important facts, in the specimen mill of Mr. Frazee, now before us. Some of the advantages of Mr. Frazee's mill are peculiarly striking. It is constructed with 8 pieces of timber, from 5 to 8 feet long; 4 pieces of plank, from 4 to 6 feet long, and about 1,500 pounds of iron, besides two long bed-pieces, a carriage, some small wooden fixtures, pulleys, etc., the whole weighing about 2000 pounds, and, as will be readily perceived, the whole can be loaded and transported on a common farm wagon. The motive power usually sold with it, is a simply constructed, yet efficient and durable, portable steam-engine, of about 8 horse-power, which, together with the boiler, weighs about 3,500 pounds, making, with the mill, the whole establishment weigh 5,500 pounds, which with three ox teams, can be handily moved at the rate of from thirty to forty miles per day. No building is required, unless the parties choose to erect a rough shed to protect it and the operatives from the weather; nor is there any mason-work. The whole affair can be brought to a given spot, put together, the gear adjusted, steam got up, and be at work in *one day* after arriving at the scene of operations. Again, this mill will perform a much larger amount of work than can be done by any other, with an equal amount of power, and at the same time the work will be superior in smoothness, straightness, and like desirable qualities.

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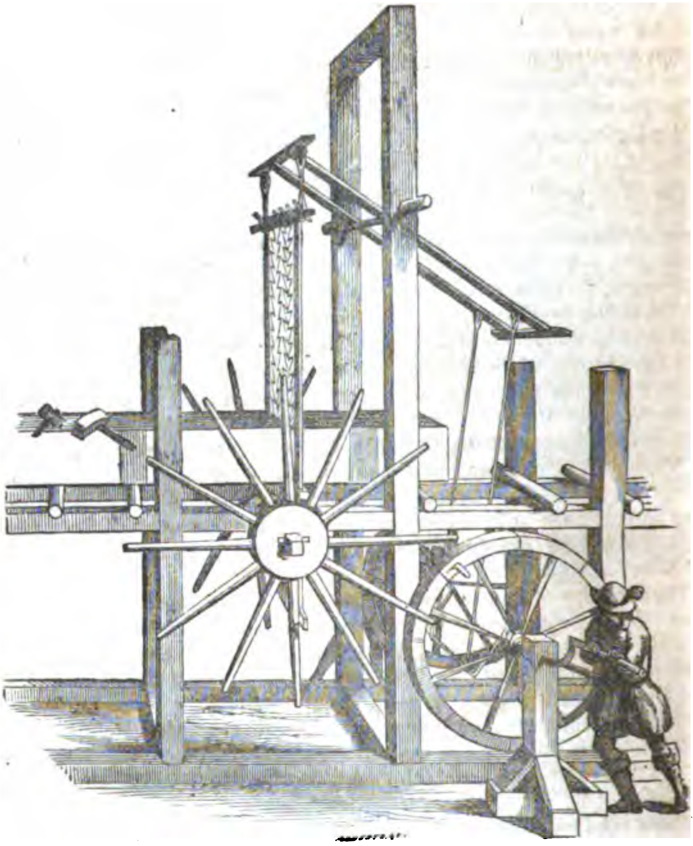
*One of these mills is in operation in this city and attracts much attention. Any information in regard to it may be obtained by addressing or calling upon Messrs. J. M. Emerson & Co., 1 Spruce street.

The simplicity of this mill is not the least valuable recommendation in its favor. It can be constructed by any mechanic, and the amount of repairs required, with fair usage, is of insignificant import. The price is another great desideratum, being only from $300 to $500, or, with engine and boiler complete and ready for action, from $1150 to $1250.

Many enterprising men have gone into a new country, determined to settle near a saw-mill, so as to use up or make a profitable disposition of their timber; otherwise, in clearing the land, they would be obliged to burn or waste most of it. This will no longer be necessary. The forehanded pioneer may now take his saw-mill, as he has hitherto taken his ax and hand-saw. On arriving at his "claim," he can set up his mill, get out the timber for his own residence, if need be, sell the balance to pay for his land; and even get back the cost of the mill besides; and, after all that, sell the mill for nearly or quite the original cost of it, to be moved to some other neighborhood, there to saw its way through another useful career; and so on, till its timbers are shivered, and its existence is ended. Nor is this all. A circular saw, for lath, and other light sawing, can be attached, with very little extra expense, and some parties have added a small grist-mill, and the whole was worked without extra power.

Drought—Protection against it.—It is estimated that some 25 gallons of water fall annually on every foot of soil in this country. Now suppose the leisure days of a farmer were devoted to the construction of one or more reservoirs on his high lands, for use when needed. What a difference should we experience in the crops of dry seasons! While the many neglect this, if a few would secure such a safeguard, what prices they might command for their heavy crops! The work would pay for itself in one such year as this

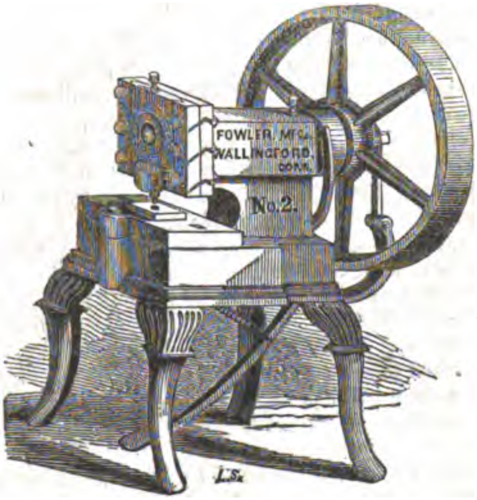


A SAW-MILL OF 1659—FROM BESSON.

SAW-MILLS were at first devised to work by manual labor, as well as by water and other power, and to this machine many crude devices for saving the former, as well as multiplying and increasing the latter, were applied. In a rare old work, *Theatrum Instrumentum et Machinarum*, by J. Besson, in 1569, there is a representation of a saw-mill, here copied, in which there is a gang of saws, one-half of which have the teeth formed to cut on the downward stroke, while the intermediate ones are formed to cut on the upward stroke. The plan for hanging and vibrating the saws is ingenious for the employment of manual labor; and the log is fed forward by means of a windlass and cord, on rollers, the windlass having arms extended out from it, which are struck by a pin on the fly-wheel upon the crank-shaft that turns the windlass at intervals by which means the log is moved a given distance at each revolution of the crank. It will thus be seen, that for a considerable period, gangs of saws were known and used;—and, in fact, all the elements for feeding in the log and sawing by power, were known at least as early as 1588, at which time they were described and illustrated by Ramelli, in *Le Deverse et Artificiose Machine*, published in that year.—*U. S. Jour.*

THE FOWLER MANUFACTURING CO.'s POWER PRESSES OR BOILER PUNCHES.

We have received the following description of these valuable machines, with the engraving, and commend them to the notice of all interested in this department of mechanics:



The main body of the machine is made of cast iron. The hole for the eccentric shaft is reamed tapering so as to receive the shaft with its several offsets.

The eccentric shaft is made large at the front end, to enable us, by the eccentric journal on its end, to give sufficient vertical motion to the punch, and the other bearings are made smaller to lessen friction, weight, etc., while it retains sufficient strength to prevent trembling.

The slide-gate is made of cast iron. Slides in ways in the usual manner, as shown in the engraving.

In the central part of this sliding-gate we make an oblong mortise with parallel sides, in which we place the cast steel sliding block, with a round hole to receive the eccentric journal. We make the sliding block so much shorter than the mortise as to allow it to have sufficient longitudinal motion to accommodate the eccentricity of the journal, while it has no room to move in a vertical direction; so that the motion of the eccentric journal will give a reciprocating motion to the slide which carries the punch. To graduate the motion of the punch so that it may come down at all times to the exact point desired, we use thin plates of different thicknesses, which may be placed *over* or *under* the steel block, and changed at pleasure.

Back of the bearings on the eccentric shaft we fix a permanent collet, which always revolves with the shaft. In the front side of this collet we fix a stud or projection, which acts upon the upper end of the stop lever to throw the wheel out of gear. This lever works on a fulcrum screw, and is held to its place by a spiral spring when the machine is in gear, while its lower end rests on the clutch lever. In the back of this collet we fix a stud or projection, against the side of which the sliding rod strikes or presses when the machine is in gear. We place the fly-wheel with loose socket on the rear part of the shaft, so as to be turned freely upon it while the machine is out of gear. Back of the fly-wheel, and loose upon the shaft, we place the clutch which governs the connecting-pin. This clutch is moved by the clutch lever, by means of projections working in a groove. The clutch lever works on a fulcrum pin, in an inflexible arm attached to the main casting, and is worked by the foot to put the machine in gear, and is drawn back by a spiral spring to put the machine out of gear.

The power being applied to the fly-wheel, it will move freely on the shaft without causing it to revolve. The workman then places his foot at the end of the clutch lever, when the upper end of the lever will force the clutch up against the nave of the wheel, and the connecting pin will be protruded against the side of the stud in the fixed collet and thereby revolve the shaft, which by means of the eccentric journal will depress and elevate the punch. When the lower end of the cultch lever is depressed to put the machine in gear, the lower end of the stop lever, by the action of a spiral spring, will be drawn over and upon the clutch lever, so as to rest upon it, thereby keeping the machine in gear until the punch has operated on the material to be punched, and has been again elevated to its highest position, when the stud on the front side of the fixed collet, acting on the upper end of the stop lever, will force the lower end off from the clutch lever; thereby, throwing back the clutch, leaving the punch at its highest elevation.

Should it be desired to keep the machine in operation for a number of revolutions, the end of the clutch lever may be fastened, or held down by the foot.

We have patterns for seven different sizes of presses, which will weigh from 100 to 15,000 lbs., constructed either with or without back gears, and capable of executing cold punching that is done by any other style of press.

WOLLINGFORD, CONN.,
Oct. 15, 1855.

JOHNSON'S PATENT THREAD.

MR. E. JOHNSON, of Willimantic, Ct., has lately secured a patent for a peculiar method of finishing sewing cotton. The patent bears a late date, and the letters are in hand. The thread is manufactured by the "Willington Thread Co.," of which Origen Hall, Esq., is the agent. The mills running in the business are located in West Willington, Ct., a small village on the Willimantic and Palmer railroad. The thread finished has a round shape, and is two hundred per cent. stronger, in the common run, than thread finished in the ordinary way. A congress of ladies, who have experience in using thread, have examined the patent thread, and used it in all ways, and each individual says, "it is very fine." "How do you like Johnson's thread?" is the question. "Very much," is one vote; "best I ever saw," is another vote; "far ahead of Coates'," says a third; "Sagemore's first make was not equal to it," says another; and so on, each one voted, all round the room, perfectly delighted with Johnson's thread. Any man versed in such matters will pronounce the thread now without a parallel in our market. American ladies will not be long in learning its excellencies, and when they have learned them, the article will be used by all of them. Nothing is more certain than that Coates has a competitor in our market, who will better meet our wants than the English manufacture. We hope the Company, which has been formed for the making of this thread, will enlarge their works, and put the article on sale in so many of our commercial towns, that thread users will have no difficulty in finding it. Inquiries for it are now frequent; and it is greatly for the interest of the country that we make our own thread, and save among us the money heretofore sent to England for sewing cotton.

American Patents.

GREAT IMPROVEMENT IN PIANOFORTE ACTION.

We have recently seen and tested the invention by Mr. John S. Morton of this city, by which the action of a pianoforte is wonderfully improved. It is perfectly simple, consisting only of a short lever attached to the hammer shank. The effect of it is to hold the hammer near the string while the player performs a rapid trill or a tremulo. Such is its action that a given note may be repeated with the greatest possible rapidity, without fail, and with only half or even less than the ordinary movement of the key. By means of it a movement is secured equal to that of a grand pianoforte.

It may be applied to any instrument, and at the cost of only $25. We understand that some of the most eminent pianists of the city have tried it and highly commend it. It is unquestionably a capital contrivance.

A Powerful Press.—The Fowler Manufacturing Co., of Wallingford, Ct., have invented lately a new kind of press, two of which they have built, and are now using at their factory. Patents have been applied for. The power of the press is one hundred and twenty tons, after making an allowance of thirty tons for friction. The press is simple in construction, and stout as iron can well make it. It is used thus far in pressing *frying pans;* one hundred dozen of which one press will shape daily. One peculiarity of the press is, that the power of one hundred and twenty tons is not confined to a momentary motion of the stamp, like most presses of great power; but this press puts forth this immense power during a motion of the stamp through four inches, through all which space the press has one hundred and twenty tons. It is supposed to excel any press heretofore built in its great and long-continued power. More particulars may be learned by addressing the company at Wallingford, Ct.

The Double Giant Mill.—The mill named above is a late invention of Messrs. S. & S. M. Colburn, of Ansonia, Ct., and is designed for grinding corn into meal, and for grinding corn and cobs into feed. It is an improvement on a mill called the *Little Giant*, which is made with a cone inside a shell, and is turned by horse power, the cone, as a whole, moving with that power in uniform rotation. In the Double Giant the cone is made in two parts; the upper section suited to crack the cob, and moving round as often as the horse turns round the lever; and the lower section of the cone is made to reduce the corn and cob to meal, and turns round eight times to one revolution of the upper section of the cone. Hence, for making meal, the grinding section of the cone goes eight times faster in the Double Giant than in the Little Giant. At the very lowest calculation the mill will do three times more work in the same time than the Little Giant. We have seen it in operation, and know that one horse has ground a bushel of corn in twelve minutes. It is a great invention, and must meet an immediate and extensive sale. Additional particulars may be learned by applying to the inventors, who have applied for a patent.

IMPROVED BRAKE FOR RAILROAD CARS.—We have recently examined a model of a new and ingenious Railroad Car Brake, invented and patented by Mr. Lucius Paige, of Cavendish, Vt., and which has been used for some time very successfully on the Rutland and Burlington, and likewise upon the Lowell Railroad. The improvement consists in the employment of a double lever, or of two levers of a peculiar form, one for receiving the power communicated by the brake-wheel, and the other for communicating the force to the brake. Spiral or rubber springs are placed between these two levers, for the purpose of giving them a yielding force. By this arrangement, the brake is rendered less expensive and more effectual than any other now in use. This of itself we should think would prove a sufficient recommendation to the new brake. All danger of setting fire to the brake by friction is obviated by placing the end of the grain of the timber, of which the shoes are formed, in contact with the wheel. The spiral or rubber spring so equalizes and modifies the force applied, (and its application may be as gradual as desired,) as to prevent the agitation, jar, and noise usually caused by the application of the brake to the wheel, and graduates the movement of the wheel to a final stop without its sliding upon the rail.

Attached to each end of the brake-beam are metallic sockets, through which the shoes extend. The latter are held in their place by metallic face-plates. When the old shoes are shortened by use, these face-plates may be unscrewed, and the shoe placed closer to the wheel; whereas, the ordinary shoes, by being permanently attached to the beam, must be replaced by new ones when shortened a trifle by use. This improvement, however vague may be any attempted description of it, is esteemed one of great practical importance and utillity. The mechanics, conductors and others, who have had to do with the new brake, on the two lines we have mentioned, speak of it as the cheapest and best thing of the kind now in use. Mr. Parker, the agent of the Boston and Lowell, speaks of Mr. Paige's brake as "superior to most," and second to none with which he is acquainted.

USEFUL INVENTION.—IMPORTANT TO RAILROAD CORPORATIONS.—Was the reader ever in a train that ran off the rails? If he has been he will have as lively a sense of the serious delay which such an accident occasions, and of the sad lack of proper mechanical appliances for replacing the train upon the rails, as railroad corporations have of the great injury done to the carriages by the clumsy methods which are brought into operation. Some better system of accomplishing the work has long been a desideratum, and that is now supplied. We were present recently at the shunt of the Boston and Worcester railroad, at Tremont Bridge, to witness some experiments with an apparatus for the purpose, invented by Mr. S. P. Coon, of Milwaukee; when a large freight car off the track was raised and gently deposited upon the rail, the whole operation not occupying more than two or three minutes.

We can only describe the apparatus in a very general way. A couple of rails (which may be taken up wherever the accident occurs,) are run transversely under the beams of the car, or locomotive as the case may be, between the wheels of the trucks, and made to rest upon four portable screws, yoked in pairs, by which the car is elevated to a proper height and firmly supported. A small winch is made adjustable to the ends of the rails, the rope from which is attachable to a staple in the roller-frame. Underneath the car, and resting on the rail and fitting to it, a small roller is placed. The car is raised by the screws, and by means of the winch it is gently drawn to the exact spot desired and safely deposited upon the rails. The whole proceedings need not occupy more than ten minutes. Like all other valuable inventions, this startles by its simplicity; and we understand that it has met the high approval of all the mechanics and other railroad employees to whom it has been exhibited. The apparatus being both light and compact, every train might carry one without inconvenience; and we have no doubt that its advantages will be readily appreciated by those most interested, the various railroad corporations. Mr. Coon, the inventor, and also the agent for this district, Mr. N. Davidson, of 9 Spruce street, New-York, are at present staying at the Tremont House.

Inventions to Prevent Railroad Trains running off the Track.—Danforth Johnson, Esq., of this city, has patented an invention which is intended as a perfect safe-guard to railway trains, so far as running off the track is concerned. He calls it a three-flange car-wheel, and, as the term indicates, it is simply a wheel with three flanges, one of which will strike the rail invariably, in case the train runs over any obstacle on the track, such as horse, cow, etc., etc. It will also keep the cars on the track in places where the rails spread; will prevent the cars from running off the track in case of misplacement of switches, etc., etc. As the great majority of accidents on railroads is occasioned by the cars running off the track, this invention will prevent such accidents in ninety-nine cases out of a hundred. Mr. Johnson has submitted the invention to Mr. Farnham, of the Rock Island Railroad, and also to a number of engineers and railroad officers who all highly approve of it, and express themselves satisfied that it will do all the inventor claims for it. It will, of course, increase the expense of the wheels, but all new inventions for the improvement of the steam engine, locomotive, or indeed any description of machinery, enhance its cost, but at the same time they more than pay for this by economizing labor, by the prevention of accidents, etc., etc.

We hope to see Mr. Johnson's invention brought before the notice of our principal railroad men prominently; it is one of the most important, connected with railroads, that has been discovered for many years.—*Chicago Democrat.*

English Patents.

IRON SHIP-BUILDING.

We suppose that a number of years must pass away before iron ship-building will be carried on to any extent in our country. Timber *versus* iron ships is simply a question of economy: we can build timber ships for less than iron ones, therefore while we can do this, such ships will take the lead. In some other countries, where plate iron is cheaper and timber dearer than with us, iron ship-building has become a great business. Glasgow, in Scotland, stands preëminent for steamship building. The new steamship Persia, for the Cunard Line, has recently been launched there; it is built of iron, and is the largest iron steamship afloat, being 360 feet long on the keel, 45 feet in breadth, 32 feet deep, and of 3000 tons burden. The length of it is eight times that of the breadth—showing how different the proportions of vessels are now from what they were thirty years ago, when three times the length of the breadth was considered the best ratio of proportions. The breadth across the paddle-boxes, however, is 71 feet; still, it appears to us, that a little more breadth of hull would not have been amiss to give her greater stability in the water. Robert Napier & Sons were the builders of both hull and engines; the latter will work up to 4000 horse power—so it is stated—but the horse power of marine engines is a very indefinite matter. Three years ago the British Government would not allow an iron steamer to carry the mails; this decree is now reversed.

This monster of a vessel is built in seven water-tight compartments, and will have accommodations for 300 passengers. She will be ready for sea in October, and unless the British Government take her up for the Crimean service, we may expect to see her here about the month of December next.

There are thirty-six iron ship-building establishments in the neighborhood of Glasgow, on the river Clyde. The capital employed is $10,000,000 and 50,000 skilled workmen are engaged; and at the present time they have 32 new iron ships on the stocks. The arrangements for their construction and alteration are very perfect. A short time since an iron steamer was lengthened 30 feet, and her capacity for carrying increased 200 tons, in 14 days. Another steamer was cut open in two places to avoid removing the engines and boilers, and 35 feet added to her length, in 21 days.—*Exchange*

New Mode of Casting Steel Tubes without Welding or Brazing.—By this process, cylindrical or tubular forms are cast of a length and diameter according to the length and diameter of tube or cylinder intended to be cast, in steel, in like manner to what has heretofore been practised when making the tubes of copper or of brass, or solid ingots of cast steel; and having heated them to the usual temperature at which cast steel is hammered, he subjects them to the action of a tilt-hammer previous to drawing through the draw-plates, or extending by means of rolling. He sometimes anneals the cast cylinders or tubes, by taking the castings from the moulds, or by taking the moulds and castings where the material of the moulds and other circumstances permit, whilst still as hot as may be, and placing them into annealing oven. The casting is then heated to a red heat, such as is used when rolling or extending ingots of cast steel into bars. The tubular casting of steel is then extended in length by hammering, when on a mandril, or by means of grooved rollers moving or rolling the hot steel tube over a fixed mandril, such as is used in welding iron tubes by grooved rollers; and it is again and again heated to extend its length. When the internal diameter of the tube or cylinder is required to be reduced, mandrils of less and less diameter, and less diameters of grooves in the rollers, are used; or, in the place of fixed mandrils and grooved rollers, taper mandrils, such as are used when drawing or rolling brass tubes, may be used, and passed between the rollers with the tubes thereon, and be withdrawn therefrom, as when rolling or drawing brass tubes on such like mandrils; or, in place of grooved rollers, dies or draw-plates, such as are used for drawing brass tubes, may be employed, with slightly tapering mandrills, such as before mentioned; the steel tubes being heated to a red heat before drawing them through less holes in the dies or draw-plates,—and the mandril is to be withdrawn as quickly as may be after drawing. In some cases, where it is not intended to re-heat and to temper the steel tubes, and yet where hard, close-grained steel tubes are required, the steel tubes may, in the last, or the last one or two drawings, be drawn cold after being carefully annealed; in which case, the reduction in diameter, and the extending in length should be small; but, by drawing cold, a very close and compact grain may be obtained.

Permanent Impressions of Flowers on Glass.—Mr. Robert Smith, of Blackford, has contrived a very ingenious and effective plan of ornamenting glass, by producing thereon permanent impressions of flowers, leaves of plants, and other objects. In this process of ornamentation, the operator goes to work by first preparing the objects to be reproduced on the glass surface with a solution of gum. The details of the figure are thus attached to the glass, in the positions required by the device. The entire face of the glass thus treated, is then covered over with a composition of oil, tallow, and wax, in a warm state. When this composition coat becomes solid, the objects are removed from the glass, which is now submitted to the action of fluorine gas; or liquid fluorine may be poured upon the glass; or further, the plate may be treated with fluor spar and sulphuric acid. This is the ordinary treatment involved in glass-etching—the peculiarity of Mr. Smith's process being the mode in which the design or the line of action of the acid is produced. The fluorine corrodes the glass only at the parts where the flowers or pattern objects have been placed, and hence the forms of the objects, however elaborate or delicate, are faithfully reproduced from the models supplied by nature herself. The ornamental designs produced in this way are extremely beautiful, contrasting as strongly with the result of ordinary staining as does a good daguerreotype picture, or nature painting, with a mechanically produced engraving; the figuring accomplished in this way may be colored as fancy suggests, by the common process of baking or "burning-in" in a furnace. This is another of those processes by which we are now compelling nature to reproduce for us her choicest devices in a more enduring form.

Miscellaneous.

Massachusetts Census Returns.—The western counties of Massachusetts are composed chiefly of towns of from 2000 to 4000 inhabitants, but they appear to be increasing.

The Springfield *Republican* publishes returns of the new census from the greater portion of the towns in the five western counties of this State. From these we gather the following facts:

Sixteen towns in Berkshire county have made an aggregate gain of 3761 over the census of 1850, while five other towns have lost 340, leaving a net gain of 3421 in 21 towns, and nine towns yet to be heard from.

Eight towns in Franklin county have gained 1610 since 1850, and fifteen others have lost 852, leaving a net gain of 852, and three towns to be heard from.

Ten towns in Hampden have gained 5627, and others have lost 2283, leaving a net gain of 3394, and four towns to be heard from.

Five towns in Hampshire have gained 1605, and thirteen others have lost 1858, leaving a net loss of 253, and six towns to be heard from. In those to be heard from are included Northampton and South Hadley, the gain in which will much overbalance the above loss, and leave the balance on the right side.

Thirteen towns in Worcester county (as corrected by us) have gained 17,805, and thirteen others have lost 796, leaving a net gain of 17,008, and twelve towns to be heard from.

Female Jockeys.—At a recent horse-race in Doyleston, Pa., twelve females, each mounted on a "sporting horse," entered this list for the prize. Among these were three circus women from Philadelphia. They started and made the race in the presence of thirty thousand people.

Commenting on the proceedings, the Buffalo *Express* remarks:

"What a comment upon the taste, the modesty, the morality of the times. Here are twelve females—the wonder and admiration of the gaping multitude on a race-course, when they should have been adorning twelve households with the dignity of modest refinement. It would have been far better for them had they been engaged that afternoon over twelve wash-tubs, rather than riding twelve horses in a heat over a race-course surrounded by vile men and imprudent women. This is a kind of progress which bodes no good to a refined and moral-toned society. When our mothers, daughters, and sisters turn horse-racers and gamblers, their influence upon the generation that follow will be such as to fill the earth with all manner of iniquity."

Routes to Boston.—All the routes eastward are deservedly well patronized, and in each the traveler is well cared for. The Norwich and Worcester route has a shorter trip by sea and more railroad, making the time shorter. The Fall River line has superior boats, most excellent officers, sets the best tables of any steamboat line leaving New-York, so far as our experience goes, and gives you an entire night for rest on board the boat. We have always been well treated by both these lines, but we are so perfectly satisfied with the Fall River route that we seldom take any other. The captains and clerks, by their long experience and familiarity with their duties and their remarkable courtesy, win the regard of their passengers and lead them to desire a further acquaintance. This is especially the favorite route of ladies.

THE OPERA IN NEW-YORK.—Capital entertainments are presented to the citizens of this city and to visitors at the Academy of Music. No company has given better satisfaction. Madam LaGrange is a charming singer and a good actor, and she is ably sustained. Miss Hensler has appeared also in several leading parts, and has received great and well-merited applause. She promises very much for the future.

THEATRICAL.—Madamoiselle Rachel is quite successful. She draws full houses and receives universal applause. She is doubtless the greatest actor of her generation. We have heard her only at her "readings," but we have heard enough to venture the highest encomium upon her abilities.

SMITH'S TOUR OF EUROPE still remains in this city; and receives, as it richly deserves, large patronage. It is unquestionably superior to any panorama ever before in this city.

NEW BOOKS.

THE CONTRAST BETWEEN GOOD AND BAD MEN, illustrated by the Biography and Truths of the Bible. By GARDINER SPRING, D.D., LL.D, etc. In 2 volumes, New-York: M. W. Dodd. 12mo.

We have always entertained for Dr. Spring the highest respect, and now, when age grows upon him with its attendant bodily infirmities, like the jewel in the hand of the craftsman, he shines brighter and brighter. These volumes are admirable. Plain and unassuming they forcibly inculcate valuable truths in an earnest, serious, and persuasive manner. Their simplicity charms us. The choice of topics is judicious, and the lessons inculcated by them are aptly set forth, and show no abatement of the intellectual power for which the learned author has been so long and so much distinguished.

THE HIDDEN PATH. By MARIAN HARLAND, author of "Alone." New-York: J. C. Derby. 434 pages.

This is one of the best wrought tales we have ever read. The moral of it is excellent. It also exhibits great power of intellect. The plot is intricate and the characters very various, but all harmonize, and, in combination, offer an unusual treat to the intelligent reader.

THE OLD HOMESTEAD. By MRS. ANN S. STEPHENS, author of "Fashion and Famine." New-York: Bunce & Brother. 435 pages.

Mrs. Stephens is a very able writer. Some passages in this book are full of power. But in this respect probably this story is inferior to Fashion and Famine. The plot of this is complex, full of strong contrasts and strange developments. But it excites the deepest sympathies of the reader. The scene is laid in New-York, and affords abundant opportunities, which are well improved, of exposing some of the gross abominations of our city government, and the corruption and degradation which seems to pervade almost all who are connected with it.

A BASKET OF CHIPS. By JOHN BROUGHAM. New-York: Bunce & Brother. 408 pages.

The author of this volume says to "my dear public" in his preface: "I have no intention of inviting you to such a feast of reason, (as he has just illustrated,) but simply ask you in the earnestness of the broadest kind of hospitality, to drop in and take pot-luck," etc. Notwithstanding a very direct intimation that some editor will take occasion to say "a smart thing or two" about him, and though he admits that these sketches are "but the sawdust and shavings accumulated during intervals of more laborious carpentry," we nevertheless consider that it contains some very good pieces of cabinet work. The timber, though very various, is generally sound, and good of its kind. It contains some four-and-twenty chapters, tales, etc., independent of each other. But some few are decidedly vulgar, and objectionable in other respects. Some are funny, some pathetic, some poetry, and some prose. (The reader will remember that the *e* in the last word is not accented.)

THE RAG PICKER; or, BOUND AND FREE. New-York: Mason Brothers. 431 pages

It seems nowadays that our heroes and heroines are chiefly to be found among the suffering and unknown. The Lamplighter is an illustration of this, and now here comes the Rag Picker, and he is not only made into a hero, but into one of the best we have ever been permitted to become acquainted with. His little helpless friend Carrie is perhaps only second in interest to little Eva, or to little Alice in Martin Merrivale. Several of the characters are drawn with masterly skill. It forcibly teaches the value of honesty and integrity, though, to our taste, it would have been better had several chapters of the most zealous kind of anti-slavery been omitted. It is hardly fair to *argue* on slavery by fictitious narrative.

INSIDE VIEW OF SLAVERY; OR, A TOUR AMONG THE PLANTERS. By C. G. PARSONS, M.D., with an introductory note by MRS. H. B. STOWE. Boston: J. P. Jewett & Co. 318 pages.

This volume is not particularly complimentary to the people of the South, though the author says many pleasant things about them. It contains a chapter on Southern Agriculture, which, like many other statements made by the author, may be a description of what he actually saw, but can scarcely be a true picture of the agriculture of the Southern States. The "inferior tools," "neglect of rotation," etc., etc., are passing away and giving place to modern improvements. In many parts of those States, sound theories are entertained, and descrimination and good sense are exercised in the management of land and crops.

THE PHYSIOLOGY OF MARRIAGE. By an Old Physician. John P. Jewett & Co., Boston. 1855. Small 12mo, 259 pages.

Some very important subjects can scarcely be discussed at all without calling down the censure of factious critics. Some, undoubtedly, ought not to be discussed except by and for the scientific. Those who have investigated this are well persuaded that it is a topic on which most intelligent people are grossly ignorant, and that incalculable suffering is the invitable result. Silence in such circumstances seems criminal. This writer has treated this delicate subject, in our judgment, in an unexceptionable manner, and shows beyond controversy, that it is quite time that parents and others should correct their own habits and their treatment and education of the young.

THE COMPLETE WORKS OF SHAKSPEARE, etc., etc. Published by Martin & Johnson, 27 Beekman street.

We have omitted to notice the recent numbers of this elegant work. Twenty-eight numbers are now issued, and, like the previous ones, in a style unequalled by any other American edition. Forty numbers complete the set. Single numbers are 25 cents; each have one or more splendid steel engravings. It is in quarto form. The later numbers contain portraits of Mr. Warren as Lance, C. W. Cauldock as Cardinal Wolsey, John Gilbert as Dogberry, Mrs. Julia Bennett Barrow as Viola, G. V. Brooke as Macbeth, and Miss Charlotte Cushman as Lady Macbeth. The late numbers are double, or two in one cover.

NEW MUSIC.

Messrs. Hall & Son have lately issued the following pieces among many others:

"The Maiden Blush," a set of waltzes for the pianoforte. By Karl Londorff. Very simple and easy for beginners.

"My Home is There." Song and chorus written by Robert Baker. Composed by Wm. O. Fiske. Very pretty, both song and chorus.

"Remembrance of Thee." Song written by Miss Celia M. Burr. Dedicated to Mrs. Wentworth, and composed by Francis H. Brown. Very pretty.

These are well worthy the attention of amateurs.

A Polka entitled "The Grand Tour of Europe and Siege of Sevastopol Polka," in which is introduced the much-admired chime of Antwerp bells. Composed by Mr. Aylwin Field, the pianist of Smith's Exhibition, is one of the best compositions of the kind we have ever heard. We scarcely know how much of the pleasure it has so frequently excited in us is owing to the remarkable skill of this gentleman, but under his touch it is certainly very beautiful. It is published by Bennett & Co.

List of Patents Issued

FROM AUGUST 28, 1855, TO SEPT., 18, 1855.

[Our last month's list terminated Aug, 28th, instead of Aug. 21st, as printed.]

J. W. Bocage, Cypress Mills, Ark., improvement in machine for cutting standing cotton stalks.

C. H. Butterfield, of South Lancaster, Mass., improvement in lantern guards.

John Cochrane, Baltimore, improvement in machines for sawing marble.

George H. Coney, Boston, improvement in the method of securing keys in connecting rods, etc.

John Clark, Cambridge Township, Pa., self-regulating valve for ventilation.

John D. Eliot, Leicester, Mass., improvement in machinery for folding and measuring cloth.

Robt. S. Eastham, Banchester, Ohio, improvement in saw-mill carriages.

John E. Heath, Geneva, O., improvement in harvesting machines.

Geo. K. Hooper, Boston, life-preserving beds for ships.

Josee Johnson, Washington, D. C., charger for fire-arms, etc.

Francis Grace Mitchell, M.D., New-York, improvement in hernial trusses.

Jonathan Nisbit, Jr., and Thos. Cosloy, Clear Spring, Md., improvement in hominy machines.

Christian E. Offhause, Newark, improved rotary steam engine.

Freeman Plummer & Gilman B. Rollins, of Manchester, Ind., improvement in seed planters.

John J. Speed, Jr., and John A. Bailey, Detroit, Mich., improvement in conical plate railroad car springs.

J. B. Terry, Hartford, improved machine for crimping paper for stickpins.

O. S. Woodcock, Connelsville, Ind., improved method of operating reciprocating saws.

Henry J. Weston, Buffalo, improved construction of beds for shingle machines.

Wm. Wilber, New-Orleans, improvement in cotton seed hullers.

Wm. Wilber, New-Orleans, improvement in steam apparatus for extracting vegetable oils.

Wm. Wilber, New-Orleans, improvement in grinding cotton and other seed for their oils.

Thos. J. Yampert, Mobile, double acting force pump.

Amos Abbott, Manchester, N. H., improvement in horometers. Patented in England, Sept. 20, 1854.

Walter & Jonas B. Aiken, Franklin, N. H, assignors to Herrick & James B. Aiken, same place, improvement in knitting machines.

Anson A. Swift, Florence, Ala., assignor to himself and Samuel L. Hill, same place, improvement in machinery for trebling a single thread.

Albert Bisbee, Chelsea, Mass., improvement in steam guage cocks.

Samuel W. Brown, Lowell, improvement in machinery for cleaning cotton.

William Burgess, London, improvement in mowing and reaping machines. Patented in England, Aug. 16, 1854.

Newell Cleveland and James J. Johnston, Alleghany, improvement in heaters for smoothing irons.

Joel Densmore, Blooming Valley, Pa., improvement in feed water apparatus of steam boilers.

Thomas Durden Montgomery, Ala., machines for felling trees.

Rensselaer D. Granger, Philadelphia, improvement in corn and cob mills.

Wm. Grover, Holyoke, improvement in cutting wire.

Wm. V. Gee, New-Haven, Ct., improvement in looms for weaving suspender webbing.

G. W. B. Gedney, New-York, improvement in brick machines.

Dean S. Howard, Lyonsdale, N. Y., improved sawing mills.

Amos P. Hughes, Philadelphia, for dove-tail key cutter.

Horace Harris, Gorham, N. Y., improved plane bit.

Daniel K. Winder, Cincinnati, improved card printing press.

James H. Kelly, Rochester, improvement in lanterns for locomotives. Ante-dated June 20. 1854.

Richard Kitson, Lowell, improvement in machine for picking fibrous materials.

Edmund Morris, Trenton, N. J., improved seal and stamping press.

Wm. M. Marston, New-York, for improvement in fire-arms.

John S. Morton, New-York, for piano-forte action.

Fred. S. Newbury, Albany, improvement in revolving fire-arms.

John M. Reader, Nashville, improvement in safety apparatus for steam boilers.

John Stinson, Danville, N. J., improved instrument for determining latitude and longitude.

John M. Sigourney, Waterton, N. Y., improvement in cooling cast iron car wheels.

Clark Tompkins and John Johnson, Troy, improvement in knitting machines.

Saml. W. Lowe, Philadelphia, assignor to himself and Jacob M. Beck, Harrisburg, Pa., for preparation of metallic plates for printers.

Peter H. Niles, Boston, assignor to Ralph C. Webster, Watertown, improvement in curtain fixtures. Ante-dated March 18, 1855.

John Van, St. Louis, improvement in cooking stoves.

Daniel Bedford, New-York, apparatus for discharging reservoirs, etc.

C. G. Betel & H. J. Brunner, Nazareth, Pa., improvement in machines for sawing stone.

Frederick Beerstecher, Philadelphia, improvement in fire-arms.

James Emerson, Worcester, improvement in pressure stoppers for chain cables.

Ezra Gould, Newark, improved method of regulating length of stroke in morticing machines.

Joshua E. Hall, Cleveland, improvement in coffee pots.

Thos. N. Luptin, Winchester, Va., improvement in rakes to reaping machines.

Henry J. Behrens, N. Y., improvement in wrench.

Wm. Mt. Storm, N. Y., improved method in actuating gas engines.

Richard Montgomery, N. Y., improvement in corrugated beams.

Jacob Nelson, Cincinnati, improved awnings for horse and dray.

John S, Robbins, San Francisco, improvement in ship's rudders.

H. & Richard S. Schevenell, Athens, Ga., improved machine for cutting ornamental mouldings.

Robert B. Tolles, Canastota, improvement in optical instruments.

Alonzo Webster, Montpelier, improved holdback for carriages.

Charles Weston, T. F. Weston, and John W. Weston, Salem, improvement in leather-splitting machines.

A. Wyckoff and E. R. Morrison, Elmira, improved boring machine.

Wm. White, Portsmouth, Va., improvement in bedsteads.

Peter L. Weimer, Reading, improvement in trip-hammers.

Saml. L. Weed, Stoneham, Mass., machine for making printers' types.

D. S. Wagoner, Penn Yan, improvement in flouring mills

John Taggert, Roxbury, assignor to himself and Theodore Parker, Boston, improvement in artificial legs.

John B. Holmes, N. Y., assignor to John R. Pratt and Joon B. Holmes, same place, improvement in ship's windlasses.

Peter Arneson, Jordan Pederson, and Hans Rees, N. Y., materials for manufacturing of hat bodies. (2 patents.)

Henry Sizer, N. Y., opening and closing hatchways.

Wm. Sellers and James Walker, Cincinnati, O., moulding circular and undercut work.

Hiram and J. C. Taylor, Cincinnati, cooper's crozing plane.

Bernard Goetz, Philadelphia, corrugated reflectors.

John Hyde, N. Y., screw wrench.

James Harrison, Jr., Milwaukie, sewing machines.

Seth C. and W. W. Hurlbut, Boonville, N. Y., feed motion for planing machines.

Charles Moore, Trenton, N. J., steam boilers.

Benj. F. Miller, N. Y., chimney stack.

Joseph Powell, Waterbnry, Ct., knitting machine,

Saml. Pearn, N. Y., ship's pumps.

E. K. Reynolds, N. Y., clock escapement.

Chas. C. Reed, Philadelphia, machine for preparing rattans, etc.

Gustavus Weissenborn, N. Y., assignor to Epes W. Sargent, N. Y., thermo-udoric filter.

Humphrey M. Glines, Manchester, N. H., assignor to J. M. & S. F. Stanton, machinery for filling seine needles.

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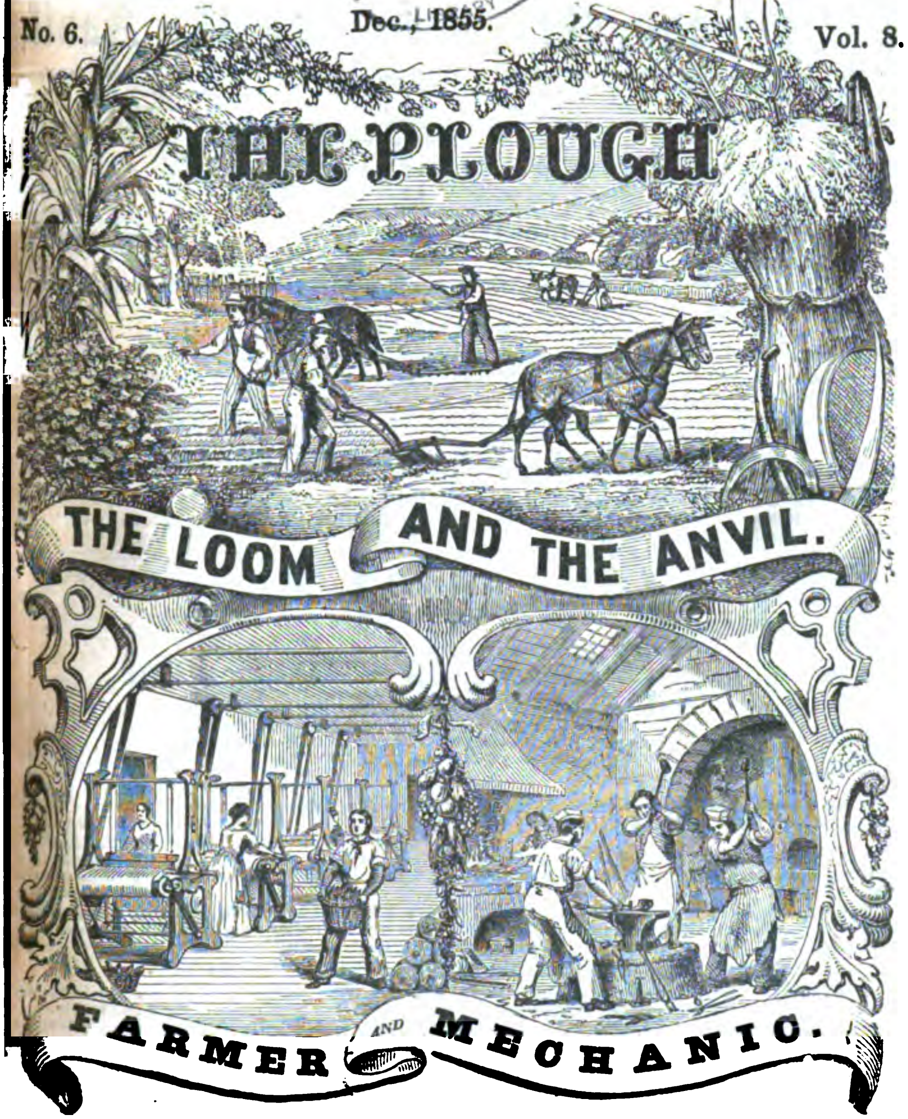
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This Preparation has never failed to produce a new growth of Hair on Bald Heads, when used according to directions. It is designed expressly for the purpose, whereas, nearly, if not all the various preparations advertised for that purpose are, in reality, designed merely for the toilet, and are composed of oils, alcohol, &c., injurious rather than beneficial to the scalp.

POQUETANNOCK, Conn., Feb. 9, 1855.

"This is to certify that I have been using Hurd's Hair Restorer about three months, and now, where my head was bald, it is covered with a new growth of hair." Capt. GEO. G. BENJAMINS.

POQUETANNOCK, Conn., Feb. 14, 1855.

"This is to certify that I have been using Hurd's Hair Restorer about three months, and where my head was entirely bald, and had been about twenty years, it is covered with a new growth of hair, at least three inches in length." ALICE ADAMS.

The *Petersburgh (Va.) Intelligencer* says of HURD'S HAIR RESTORER: "This preparation seems to be efficacious for the restoration of the hair upon bald heads. We have seen the testimony of persons well known to us, who have used the compound successfully, thereby corroborating the opinion of its restorative energy."

For a Superior Article for the Toilet use HURD'S GOLDEN GLOSS.

This preparation is highly perfumed, and gives to the hair a dark, soft, glossy, and lively appearance, which can not be obtained from any other article. It effectually cleanses the scalp, and keeps the head clean and healthy.

HURD'S HAIR RESTORER is sold at $1, and HURD'S GOLDEN GLOSS at 25 cents per bottle, by Druggists generally.

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The Plough, the Loom, and the Anvil.

Vol. VIII. DECEMBER, 1855. No. 6.

"COMMERCE IS KING."—ITS CONDITION AND ITS RELATIONS.

In the preceding volume (p. 513, March number,) we presented our readers with a very concise view of the true meaning of this common saying, and illustrating why, and in what sense, the assertion must be regarded as true.

Commerce, in the popular sense of the term, is supposed to express only a portion, and a very small portion, of what really is included in that term. In fact, all trade is commerce. The purchase of an ounce of onion seed is as truly commerce as the freighting of a ship with a rich cargo to be sent across the ocean. As we said in the article referred to, foreign commerce, immense as it is, is estimated as only one-twentieth the sum total of commerce. There must, therefore, be some reason for the monstrous dimensions which "commerce," in its restrictest sense, exhibits to the eyes of the multitude. With many, a merchant is little less than a lord. Of itself, as a title it weighs almost as much as "prince."

Commerce, in its restricted meaning as trade across seas, has often been proclaimed as the foundation of a nation's prosperity. We wonder what the character of that commerce would be which had not an excess of agricultural or mechanical production to transport. In other words, we wonder what sort of a foundation it would furnish for a great and powerful people, if it had not a foundation in other home departments of industry on which it could itself be supported. It has always been the custom to talk very prettily, and even eloquently, on the importance of commerce, and this interest is immense and worthy of profound regard. But if every ship owned in the country were sunk to-morrow, the loss would not be felt so much as if the grass crop should fail for a single season.

Our commercial relations are extensive, and pervade all the departments of industry, and their destruction would be most deplorable. But let loose a horde of incendiaries, at midnight, who shall set fire to and consume all our factories of cotton and woolen goods, and the suffering and utter destruction of the hopes of multitudes that would result would be still greater. The capital invested in commerce is only about one-third of that invested in manufactures, and the annual product of our manufactures is nearly double that of commerce. We state this on the authority of the census of 1850, as published in Mr. Tucker's valuable analysis.

If every ship and steamer used for the transport of merchandize to any distant point, were consumed by fire this night, the havoc of property, though terrible, would be much less than it would be were all our flocks and herds to die ere sunrise.

It does not follow, from the fact that a given interest is immense, that there is none greater. The world is full of immense interests, and the most prominent in the view of many, may be of quite secondary importance.

Commerce, when conducted on correct principles, is far more an index than a basis of prosperity. To call it "a foundation" seems scarcely less rational than to charge the occurrence of a cold day to the fact that our thermometers are graduated so far below zero. As well might you describe such thermometers as the foundation and corner-stone of the kingdom of Boreas.

Commerce is, or may be, of almost incalculable value to a community which has industrial resources by which it may be supported. But it can not create those resources any more than a bank can create capital, though both commerce and banks are of so great value as means of increasing the profits already acquired by successful industry.

A commercial man is not a producer, according to the primary meaning of the word. He is a carrier, a sort of middle man between the producer and consumer. The carrier may or may not own what he carries. If he does own his freights, he may thereby acquire a new source of power, but not as carrier. The *carrying trade*, as such, is not invested, either in fact or in fancy, with any peculiar honor or dignity. The mail carrier and the carrier of the richest silks both stand on the same "platform." Probably some of our express companies carry more value, and more concentrated value, than any foreign merchant. Hence, if any standard of that sort affects their position in society, then the express man is at the top, and the traveling agent of the company, who actually accomplishes this wonderful feat, should be at the head of his class. But such are not the artificial arrangements of society. The commercial class are the kings. Why is it so?

Foreign commerce requires capital, and wealth gives power. Theorise as we will about the matter, it is so, and it will be so. When wealth is controlled by a few, the few control the many. Wealth secures, or may secure, education, and knowledge is power. Nor is this all; for being educated they are naturally the associates of the members of the learned professions, and there is a common sympathy between them, growing out of this state of things. Here is reason enough for the influence exerted in many communities by these classes.

Again, these conditions are favorable for the exhibition of executive skill, of talent, and hence is an inviting field for the ambitious and the lover of display. Who but those, and such as those, are likely to exert a controlling influence over the affairs of a community?

There are wide sections of country in which the incidents of wealth and of education are not peculiarly characteristic of the classes above described. In such communities no such preponderating influence is possessed by them, but each falls into that rank which his own *possessions*, mental and material, naturally demand for him. There is then no magical charm in the name or the reality of one whose social position is determined by the fact that his business lies between remote points. If successful he is entitled to his full share of honor, though sound judgment and careful calculation will not always secure against ruinous defeat and failure. One may also do violence to good judgment and tolerable discretion, and yet, by some unknown concurrence of favorable circumstances, not at all taken into his account, may be successful. There is often injustice in the world's verdict, in these cases, whether of success or failure.

Often those who are engaged in these pursuits are owners of what they carry. But very often they are not in fact, even when they are so in name, for they buy on credit, and the only equivalent paid is a small piece of paper, "the *evidence*" of a promise to pay thereafter. Hence if the voyage is unfortunate, those who sold the goods to the "merchant" on credit are sometimes the real and the only real losers.

We have said that merchants are not, in the primary sense of the term, producers. True, the value of merchandise is increased by transportation. But the fact that transportation is practicable, gives value to all merchandise, and this increased value is received by the producer only under such conditions. This is almost too obvious to require statement. Hence there is no special sense in which the commercial class are producers, not also appropriate to all carriers. With increased facilities of transportation, heavy goods especially increase in value, and hence water carriage being cheap, it has an advantage over almost all other modes of transportation. This is the only point in which it, as a trade, has precedence over the express wagon or railway car.

Commerce often and usually tends to increase the market value of all kinds of productions, by extending the demand for them, and thus giving energy to competition in production. By connecting distant points of territory, it greatly extends the market area.

But sometimes the commercial class (we use the term in its limited sense) do a vast injury to society. They bring disorder into every department of enterprise. The past year has been one of those constantly-recurring seasons. There was a time when this, like other sorts of business, was based on the necessities of the times, and had real property for its guaranty, and was limited by the actual demand. Importations were made because they were needed, and the consideration paid for them was substantial. Now, the whole country is in an unnatural, unhealthy condition, in this respect. The entire commercial class, if called upon to-day, could not pay their debts. Men go into that business to avoid hard work, or to make money suddenly, and so becoming rich, to "retire." Thus they begin in poverty; but they can not secure the end they seek by doing business "in a small way," and hence they begin by taxing their credit to its utmost, and, if successful, all is well; and if not, they only fail and —— begin again. We came to the conviction, by careful observation and extensive inquiry, some years ago, that more than ninety per cent. of all who commence as "merchants" fail. And who are the ultimate losers? Farmers and mechanics bear quite their full share, though sometimes only in an indirect way.

Other forms of industry often lose through the agency of commercial men. We hear much of the influence of Lombard street in determining the price of our own productions, and so far as cotton is concerned, its price is and must be regulated in accordance with the foreign demand. This is a calamity forced upon us by the organization of southern society—manufactures and markets being studiously excluded. But this is not, in fact, the whole story. We are reminded of a very recent "panic" in which Wall street, that is, the whole city, was moved with consternation on the arrival of a steamer with intelligence of a money panic in London! Why? Because, in such a state of things abroad, Wall street would be called upon to pay its foreign debt, and then Wall street would become an utter bankrupt. This is the sad truth, and it is only one of the proofs of the rottenness of the present commercial system. Were farmers to practise upon the same principle of action, and to live equally on credit, there is scarcely a family whose estates would not be wrecked within ten years, and the present arrangements of property, of competence and dependence, would be utterly reversed. We learned when a boy, that it was wrong to risk what might not be lost without ruining ourselves, and still more without injuring others. We still hold to this doctrine.

And what would be the consequences were Wall street to become bankrupt? Ask the widows and orphans whose all was wrecked in the recent frauds committed upon the New-Haven railroad stock. Ask the other hundreds of the same class whose whole dependence was annihilated or sadly diminished with the ruin of the United States Bank. Ask the tens of thousands whose whole or whose chief income is invested in stocks which have become unable to make dividends. It is by noticing transactions like these that we discover what connection there is between Wall street and commerce, and farming and mechanical interests.

Nor will any sane man venture on the assertion that these affairs are in a healthy condition, when panics are so easily raised and sometimes so ruinous, and more than this, of so frequent occurrence.

Who is alarmed at the news of an individual failure? Not he whose welfare is not thereby prejudiced. Not he who cares nothing for so trifling a loss as is involved in it. Why then such a panic as that to which we have just referred? For the reason that we have assigned, and no other. *Their* own business prospects are endangered.

Does any reader need other evidence to convince him that the commerce of this country is in an unsound condition, and that it is conducted on hazardous principles? Let him read the list of failures of large corporations or extensive houses for the last twelve or eighteen months, and we think he will be quite satisfied.

Does any one need evidence to convince him that there is connection between the transactions above alluded to, and the vain cry for WORK which filled all our cities and large towns and manufacturing villages the last winter? Let him not fail to note the unvarying relation which one sustains to the other. They are more than Siamese twins—it may rather be said to be "fit body to fit head." It is the seed and the harvest. It is the flower and the fruit.

We are not intending an attack on our "princely merchants," nor to raise prejudices between different interests, nor to excite jealousy among different sections of the social structure. But we see a tremendous evil occasionally developing itself in ruinous action, and we would call attention to the various symptoms, and have a wise jury of doctors explain its diagnosis and give us its pathology. We would know the truth, and avoid the evil and secure the good. We would have our producing classes fully understand the relations which they sustain to the commerce of the world, and how they can best defend themselves from the risks and actual losses to which they have hitherto been subject. We wish them to know exactly to what dangers they are exposed, and how the excessive or misdirected trading of other classes of society may have a hazardous connection with their own individual affairs, and how to provide suitable checks. Thus and then, after mutual counsel and discussion, systems and habits, principles and practices may be established, under the influence of which each may regard himself as comparatively safe, and thenceforth may avoid those terrible upheavals of the very foundation of commercial activity that have so recently and so seriously disturbed the quiet and deranged the business of every large community.

AGRICULTURAL JOURNALS.

If we may be allowed to say so, without incurring the suspicion of undue self-esteem, we do not think this class of publications are sufficiently appreciated. They encounter at the very outset the popular prejudice against *book farming*. We cannot undertake now to discuss the unreasonableness as we esteem it, of this prejudice, though we expect to have something to say in its behalf before the year is closed; suffice it at present to remark that it is certainly no valid objection to a good idea, that is found in the pages of a book or the columns of a newspaper, and an agricultural journal should be merely a repository of good ideas on the subject of agriculture. If erroneous opinions find their way into its columns they certainly are in the very best place to meet exposure; if, on the contrary, its teachings are correct, no better vehicle for communicating them to the public, than the pages of a newspaper can be found. Unfounded as this prejudice is, however, it is a general one, and every agricultural journal must encounter it; some to outlive it, many to sink under it.

It is a misapprehension of the mission of such a paper to restrict its objects to instructions in the arts of husbandry. The cultivation of our staple crops, the rearing of stock, and the improvement of the soil, are subjects of prime importance, but they do not constitute the exclusive material for agricultural journalizing. The social and commercial relations of the planter are no less important, nor less legitimate subjects of inquiry and discussion. The social statue of the pursuits in the family of professions, and not the relations of its individual members, is what we mean by the first; and by the latter interest, it will be at once understood that we refer to all that affects the trade in those commodities which are produced by the planter. It is the aim of an agricultural journal to place the planting community where its importance demands it should stand, among the first, if not the foremost, in the catalogue of pursuits; and it should not be less its aim to advise its readers of all that concerns the commercial value of its products. We make crops for the money which they yield, and our profits are not more dependent upon the skill with which we cultivate the soil, than upon the judgment with which we dispose of our productions. To this end it is as important that we should be advised by the influence which govern our markets, as that we should be informed of the principles which control in the cultivation of our crops.

It is regarded important that various other public interests should be represented by the press; why should it not be equally essential to the planting interests. The mercantile, the manufacturing, the professional vocations, all have their organs; have the agriculturists no common cause, no esprit de corps which demands public expression? It should be the aim of the agricultural journals to cultivate among their readers that community of sentiment—that feeling of brotherhood among those engaged in the same pursuit, which is thought to be so essential to the prosperity of other vocations. If they discover no new principles in agriculture, if they add no new instructions in the art of husbandry the presses devoted to the interests of agriculture will have done a great deal in giving dignity and respectability to the calling. When our fields are made the subject of study as well as cultivation, when our country-seats are made the home of intelligence, and beauty, and refinement, a new and powerful element of prosperity, will be added to the agricultural pursuits. Our population will then become permanent, and men of cultivated minds will seek in the rural arts, the most congenial walks of life.—*Soil of the South.*

CULTIVATION OF WHEAT.

[This branch of farming deserves more attention than it has received, and a thousand mistakes are made in its culture as fatal as one described below. We find a capital treatise on the subject in the *Homestead*, by "a son of Connecticut," from which we extract the following, which we commend to the careful attention of our readers.—Ed. P. L. A.]

I was particularly struck with an essay in the first number of the *Homestead*, upon the cultivation of wheat, displaying a knowledge of that crop and its requirements, and a familiarity with the details of its management, which, however natural on the banks of the Genessee, would scarcely be looked for among the hills of Connecticut. As to growing wheat in your State, I have no doubt it can be done on many soils with the same expenditure of labor and skill which are necessary to its successful cultivation elsewhere.

Several experiments, it is true, within my own knowledge, have resulted in failure—but it it was only natural that they should do so—for they were made without any sufficient acquaintance with the peculiarities of the crop and the conditions of its growth and maturity. I myself, when a boy, assisted in one of these experiments. A rich dark loam, admirable for corn or oats, but rather too moist for rye, was for that reason sown with wheat. I think it followed corn and was got in in October. Any wheat-grower needs not to be told the result. The straw was black as the ground it sprang from, and the wheat was nowhere. A single well-matured kernel could not be found on the entire piece. In this experiment the sowing was a month too late, but that mistake only added a superfluous certainty to a failure already certain. No rich, moist, dark loam should ever be sown with wheat in Connecticut or any other State. Such a soil will always pay better in corn, oats or grass. But on that same farm, are warm, dry hill-sides, which I have no doubt might be made to produce forty bushels of Soule's wheat to the acre, or twenty-five of Mediterranean. Not with the same treatment—I do not mean that—for the same treatment would not be proper for the two varieties of wheat. For the Soule's I would select a suitable piece of ground in soil, manure it well in the spring with stable manure, which had been made and kept under cover—break up and cultivate one summer in corn—the next summer fallow the corn stubble, the more it is ploughed the better, and sow in September. But that puts off the wheat till the next year. Well then, if I had no suitable land in cornstubble, and wished to sow the current year, I would select as before a piece of soil of some kind, but clover would be of course the best; manure in June and turn it under along with a good coat of grass; in August when the whole would be well rotted, intermix it all thoroughly by repeated ploughings and harrowings and sow as before. Or, if I chose to plough but once, I would compost the manure, turn under a coat of grass in June—cultivate frequently during the summer—expending no less labor than in the former method, and at the time of sowing spread on the compost and harrow it in with the seed as before the drill. All of these three methods, especially the two last, are much practiced by successful wheat-growers in Western and Central New-York. A still better manuring would be to cowpen the ground, or best of all, to fold sheep upon it. Sheep, indeed, of themselves, usually select for their night lodges that portion of their range which is most dry and elevated, and therefore best suited to wheat.

Having prepared the land, as above indicated for Soule's wheat, it would be a mistake to sow Mediterranean. That would be likely to fail, and return but a light yield. Soule's wheat *must* have a dry, mellow, rich soil, (rich, I mean, in ammonia and phosphates, for an excess of humus is hazardous to any kind of wheat,) and then, with a favorable season, it will yield abundantly. The Mediterranean is less exacting in regard to most of these conditions, but it must not have a soil too rich; a maximum crop of this kind of wheat, not exceeding, I think, 30 bushels per acre, or about half the maximum of the other. The same corn-stubble which should be fallowed for Soule's wheat, would probably yield 30 bushels of barley or 60 bushels of oats, and then be all the better for Mediterranean. Which would be most profitable would depend on circumstances. Perhaps, after all, the best wheat for Connecticut would be the old-fashioned white flint; but I do not know where it can be found. This wheat grows with a slender straw and a long beard, on which the kernels are sparsely set and closely embraced in the husk, for which reasons it is not liable to sprout in wet seasons. I have had five hundred bushels of this wheat from 20 acres, and have known it to average as high as 30 bushels per acre. It will not bear much manure, as it lodges where Soule's wheat would do best, but it will grow and yield 15 or 20 bushels per acre on a thin soil, where Soule's would prove a failure. For quality this variety is superior to all others, holding the same rank among them that the Saxon does among other varieties of wool. But it has been supplanted by the Soule's and the blue stem, both in this State and at the West, just as when we were boys, Col. Humphrey's sheep were supplanted by the Saxons. I have inquired much for it for two years past, and I know of others who have done so. The best miller in this county (Wayne) has seen none since 1851, when he bought a sample of a neighbor of mine to manufacture some flour for the London Exposition.

But I am growing garrulous on this subject of wheat culture, and giving it a prominence far beyond your interest in it, or mine either, indeed; for this year I have sown no wheat. More money has been lost than made at the business in this State these three years, owing to the depredations of the midge or red weevil. And it is now well settled that no lands here are at present safe for wheat, with the exception either of limestone ledges, or deposits of sand or gravel and coarse drift. Fortunately there is considerable land of the former description west of the Genessee, and a large proportion of the latter, composed of limestone and sandstone pebbles, intermixed with loam, piled up often in ridges forty or fifty feet in height on this side of that river. On these warm quick soils, the wheat either comes into flower too early for the midge to deposit her eggs, or what is equally to the purpose, the grain matures so rapidly as to allow the young weevils little opportunity for mischief. This weevil, as you know, is a delicate little maggot, which sucks up the first sweet juices of the forming kernel, but has no means of penetrating its toughening skin as it advances into the milky state. A single weevil makes little impression on a kernel of wheat; four or five reduce it to hen-feed; but fifteen or twenty are often found inhabiting a single gland. Those buds which are most safe from the attack of the midge are most liable of any to injury from the Hessian fly. But this insect does not inflict such sweeping destruction as the other. And yet it is almost incredible when we reflect that a single fly in its larva state is competent to destroy a stalk of wheat, but not less than one hundred weevils would be requisite to devour the product of that stalk.

A good many farmers in this region sowed rye last fall—some on clover soil which had been mowed, but more on oat stubble—and they have generally harvested about thirty bushels per acre. Things with us now point to the old Connecticut rotation of corn, oats, rye, and grass; and if prices remain where they now are, fifty bushels of corn, fifty of oats, and twenty-five of rye, succeeded by two or three good crops of grass, will not be bad farming.

Wheat is preëminently *the* crop of an interior country, because it always commands a higher price per pound than any other grain, and for that reason can better afford the cost of long transportation. But near the great markets this advantage disappears, or is even reversed; and I have remarked for years that the best grass lands of Oneida county, and the best wheat lands of Monroe, have been on a level as to price. Everything to its proper use is the true motto, and if a man's lands will pay the best profits in wheat, then he should sow wheat, though it be on the cobble-stone knolls in the valley of the Naugatuck. And for myself, I think if I were so unfortunate as to own any of those knolls, or any of the shrub-oak barrens along the Canal Railroad, I should investigate, in a practical way, the relations of guano and clover and wheat; but I will not deny a personal preference, along with S. N. G., to tend the sleek kine on the verdant slopes of Cream Hill, or in some green valley where a clear brooklet threads its way towards Lake Ontario, to watch the glad gambols of my calves, and my cattle, and my pigs, and my children.

[These suggestions, coming from an intelligent and practical wheat-grower, are quite to the point. They explain the characteristics of the different varieties of wheat, and by their practical details will enable our farmers to experiment intelligently upon its culture, Since the publication of the first article on this subject, we learn that here also the weevil is the worst enemy of winter wheat, and that many crops this season have been entirely destroyed by it.]

MOVEMENTS OF PRODUCE SPECULATORS.—We learn from the interior of this State that the New-York speculators are now going about the country for the purpose of buying up the potato crop, which, from all accounts, is unusually large. A farmer in Burling, Rensselaer county, a few days ago contracted with one of these dealers to furnish him with the product of five acres at ten cents a bushel. Other producers in the same neighborhood were unwilling to enter into a contract unless they could get one shilling a bushel. The speculators, no doubt, are obliged to dig the potatoes themselves at these low prices. At Ogdensburg, on Saturday last, fine potatoes were freely offered at one shilling a bushel.—*New-York Evening Post.*

FLOUR EXPORTS.

We have compiled from Treasury reports the following table of export and destination of flour from the United States. It affords a sort of chart of the direction which the flour export trade has taken at times:

Destination of flour shipped from the United States.

Where to.	1851.	1852.	1853.	1854.
Swedish West Indies,	5,315	8,050	2,301	600
Danish West Indies,	50,102	52,592	50,332	31,056
Dutch East Indies,	1,873	2,040	2,025	350
Dutch West Indies,	19,217	17,570	18,952	13,489
Hanse Towns,		38,635	1,785	11,686
Holland and Belgium,	594	14,660	925	26,980
England,	1,004,783	1,531,994	1,378,065	2,026,021
Gibraltar,	195	4,415	2,169	18,206
British East Indies,	1,600	3,506	1,194	544
British West Indies,	294,731	305,791	359,184	261,369
British American Colonies,	252,380	199,560	218,475	225,006
Australia,		10,464	177,325	79,416
France,		2,700	8,784	728,279
French West Indies,	7,902	7,652	7,901	31,259
Hayti,	43,867	42,902	50,421	56,121
Cuba,	5,511	17,200	1,537	11,608
Spanish West Indies,	2,285	7,949	1,967	6.070
Madeira,	7,006	8,287	9,200	4,360
Cape de Verds	888	835	277	4,721
Cape of Good Hope,		13,998	23,050	10,254
Mexico,	14,964	25,081	17,039	13.828
Honduras,	5,912	6,231	8,107	4,241
Central America,	2,573	5,670	2,789	2,332
Columbia,	47,477	53,257	43,881	42,097
Brazil,	374,711	345,025	433,843	316,419
Argentine Republic,	22,612	12,942	24,315	27,236
Chili,	4,327	6,836	10,870	3,859
South America,	200	1,480	9,644	356
West Indies,	4,079	765	1,650	
Africa,	5,430	9,993	6,838	3,533
Northwest Coast,	2,598	7,837	5,544	9,783
Other ports,	19,158	49,347	44,579	57,120
Total barrels,	2,202,335	2,799,339	2,920,918	4,022,386
Average price.	$4 77	$4 24	$5 10	$6 88

The return is for the year ending June 30, 1854. In that year, as in 1847, France was a good customer for flour; but England, as usual, took about half the whole. It is to be observed that the quantities sent to the West Indies, South America, etc., is in the aggregate about half, and it is what they *must* have. When there is an English demand to raise the price they must pay more. The above table embraces flour only. The aggregate quantity of flour and wheat exported in 1853 was, in bushels, 18,900,000, at an average of $1 12½, and last year it ranged 28,148,595 bushels, at an average of $1 55. The following table gives the aggregate export and official value, showing the yearly average for several years:

Aggregate export of flour and wheat from the United States.

Year.	FLOUR.			WHEAT.		
	Barrels.	Value.	Ag. value bbl.	Bushels.	Value.	Average.
1847	4,882,496	26,133,841	$5 95	4,399,951	6,049,350	$1 37½
1848	2,119,393	13,194,109	6 22	2,034,704	2,669,175	1 30
1849	2,108,113	11,280,582	5 35	1,527,534	1,756,848	1 15
1850	1,385,448	7,098,570	5 00	608,661	643,745	1 07
1851	2,202,335	10,524,331	4 77	1,026,725	1,055,732	1 00
1852	2,799,329	11,869,143	2 24	2,694,540	2,555,209	95
1853	2,920,918	14,783,294	5 60	3,890,141	4,354,403	1 12½
1854	4,022,386	27,701,444	6 88	8,036,665	12,420,172	1 55

Nearly all the wheat went to France and England. The above figures give, however, only the quantities of domestic growth exported. The following show the imports, mostly Canadian, and exported from bond:

Year.	WHEAT, BUSHELS.			FLOUR, CWT.		
	Imports.	Exports.	Excess retained.	Imports.	Exports.	Excess retained.
1851	1,237,856	184,107	1,053,749	586,379	312,925	273,454
1852	870,889	451,874	419,015	496,201	486,075	10,126
1853	862,295	605,931	257,364	517,931	461,326	56,605
1854	1,277,352	053,798	345,554	531,798	492,989	38,809
1855	2,196,650	1,097,113	1,099,547	777,728	616,206	161,522

It follows that, in 1853, about 1,400,000 bushels of Canadian wheat were imported and consumed in the United States, displacing as much of native growth which was exported.—*U. S. Times.*

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

AUSTRALIA AND AMERICA AS WOOL-GROWING COUNTRIES.

In a recent publication in Edinburgh, entitled, "The Emigrant's Manual—Australia and the Gold Digging," page 8, is the following paragraph:

"No country on the face of the earth seems to be so admirably adapted for the feeding of *sheep* and produce of *fine wool.* AMERICA, AS IS WELL KNOWN, IS NOT A SHEEP-FEEDING OR WOOL-GROWING COUNTRY. In Canada, and other northern parts, sheep require to be housed and fed by artificial means for several long winter months, while on the fine prairies of the States, the sheep which are left at large thoughout the year *do not yield wool of a valuable quality.* Australia, on the other hand, resembles Spain in its qualities for pasturage *in all seasons;* and its climate produces equally fine, if not superior, wool. At this moment *Australian wool* enjoys the highest reputation in England and America; it takes the lead in the market; and so readily and so profitably is it disposed of, that the cost of transport of 16,000 miles goes almost for nothing in the grower's calculation of profits. Most of those beautiful and soft woolen fabrics which go by the name of Indianas, Merinoes, and Challis, and in so great request by ladies in the shops of our haberdashers, are chiefly manufactured from this fine Australian wool."

Without fear of contradiction, we pronounce the above to be a tissue of misrepresentations. Nothing but gross ignorance upon the subject, or a propensity to disparage other countries, particularly the United States, when compared with England, could have induced the writer to assert that "No country on the face of the earth seems to be so admirably adapted for the feeding of sheep and produce of fine wool as Australia." What has become of Saxony, of Prussia, and Prussian Silesia, (not, at present, to speak of the United States of America,)—countries which are so universally and so justly renowned for their fine sheep and fleece, that it seems difficult to imagine that any one possessed of sufficient knowledge to write a book, to inform others, should, himself, be so ignorant of the subject of which he treats? He had better consult the treatise of his countrymen, Mr. W. Youatt, on sheep, (published in London in the "Library of Useful Knowledge,") before he again exposes his ignorance.

This celebrated veterinary surgeon informs us that New-Holland had *no sheep of its own*, but that, soon after the settlement of New-South Wales, a small number were procured from Bengal. These, he says, had large heads, Roman noses, and slouch ears; were extremely narrow in the chest, had plain and narrow shoulders, very high curved backs, tremendous long legs, and *coarse, hairy fleece.*

They next imported South-downs and Leicesters from England. But the South-down is, himself, a hybrid; his wool never measuring less than the $\frac{1}{1250}$ of an inch; and the Leicester is a *hairy* sheep.

The last attempt to stock Australia with this useful animal was by *importations from Saxony.* It has been said that these were *English* sheep, because they were taken *from Liverpool;* and so they were, but they were *selected in Saxony*, and taken to New-South Wales by the route of Hamburg, Hull, and Liverpool.*

And it would be strange if they should so much improve in Australia as to deserve the unlimited encomium that has been pronounced upon them, for, 1st, although our author, speaking in the most general terms, avows that "the climate of Australia resembles Spain in its qualities of pasturage," Mr. Youatt says it has one serious inconvenience, viz., that it is subject to periodical droughts; one of these, he says, commenced in 1826 and ended in 1829, that very little rain fell during the whole of that period, and that for more than six months there was not a single shower. As to the soil, he says that a considerable portion is productive, but an equal part comparatively barren. 2d. It would seem that the Saxony breed of sheep were not kept *pure*, but crossed with the other breeds, which is a great error. 3d. They will not compete in actual measurement with the microscope and micrometer. For example.

We have in our collection the following specimens of Australian fleece.

1. Marked Port Phillip, Australian, fine Merino wool. This measures $\frac{1}{1250}$ of an inch.

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* See Howitt's two years in Victoria, with visits to Sidney and Van Dieman's Land.

2. Marked Botany Bay Colony. This is evidently a fleece of several year's growth and measures $\frac{1}{1250}$.

3. Marked ¾ Merino, Port Phillip, Australia, and measures $\frac{1}{1475}$.

4. Marked choice, fine Merino wool, Austin, Australia, and measures $\frac{1}{1875}$.

5. Marked fine Lancaster, Australian wool, and measures $\frac{1}{1875}$.

6. Marked Sydney, Australia, fine Merino, and measures from $\frac{1}{1875}$ to $\frac{1}{1333}$.

Whereas the fine wools of Saxony, Prussia, and Prussian Silesia runs as high as $\frac{1}{3185}$.

When our author asserts, roundly, that "America, as is well known, is not a sheep-feeding or wool-growing country," he leads us to believe that he has never been on this side of the Atlantic himself, and has taken little pains to inform himself from those of his countrymen who have been here. How came it to pass, if his assertion be true, that the Saxon-Merino sheep which, when transported to England, deteriorates, when brought into the United States, not only preserves his character, but sometimes improves. We have in our cabinet of specimens wool raised in Alleghany county, Penn., from a breed of Saxony sheep, which, at home, never surpassed in fineness of fleece $\frac{1}{3150}$, but here rose to the extraordinary fineness of $\frac{1}{3350}$. Captain McArthur, a zealous agriculturist, admits that the Saxony fleece deteriorates in Australia.

Against such a fact as this our author may swagger, and hector and scold till he is tired, but he "cannot rail the seal off the bond."

In Canada and other northern parts, where (he says) "sheep require to be housed and fed by artificial means for several long winter months," he seems to admit that they yield wool of a *valuable quality*. But Mr. Youatt tells us that the sheep of that colony are of the *commonest kind*, that there is a prejudice against them which is fostered by the mother country that her colonies may be as dependent upon her as possible, and her woolen manufactures find a ready sale there. We have one specimen of Canada wool in our cabinet which we have just passed under the micrometer, and find it measures $\frac{1}{1250}$ of an inch.

We recommend to our author, before he issues another edition of the "Emigrants' Manual," to examine a suite of specimens of wools of the United States which we recently sent to Mr. Solby, agent for the British Commissioners of the Great Exhibition of 1851, to be deposited in the Grand Universal Trade Museum in London.

But our author tells us, moreover, that Australia resembles Spain in its qualities for pasturage *in all seasons*, when it is perfectly well known that the most valuable breed—the "transtrumantes" or "migratory"—are driven several hundred miles, twice a year, in search of pasturage. *

What may be the reputation of the Australian wool, "at this time," in England, we do not pretend to know; but in America it does not enjoy "the highest," as our author, unwittingly, states.

In regard to the *fabrics* referred to in the article under consideration, which are in such great demand in the haberdashers' shops in England, manufactured (as it is said) from the Australian wool, we ask leave to remark that the *Indianas* are quite a coarse article, composed of *wool* and *cotton*, and, in regard to *Challis*, it is composed of *wool* and *silk*, and owes its beauty and lustre to the latter material. Messrs. Levy & Co. gave us a specimen from which we obtained the filaments of the wool, and found that it measured only $\frac{1}{1575}$ to $\frac{1}{1875}$; the fibres of silk being $\frac{1}{2500}$.

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* The Spanish word "*merino*" means "moving from pasture to pasture."
Spanish Dictionary.

PHILADELPHIA, Nov., 1855. P. A. BROWNE.

INSECTS INJURIOUS TO VEGETATION.

WE now continue our remarks on the order HEMIPTERA. But our first duty on this topic is to correct an important error which escaped the attention of the proof-reader in our last number.

The order Hemiptera is not divided into the two groups "Heteroptera and Hemiptera," but into HETEROPTERA and HOMOPTERA. On page 266 this latter word should be substituted for "hemiptera," in the paragraph numbered 2, as well as in the preceding paragraph explaining the groups into which insects of this order are arranged. We now come to the

APHIDIDÆ, or *Plant Lice*, which differ materially from those before described. Their bodies are soft and generally oval in form; are furnished at the hinder extremity with two little tubes, knobs, or pores, from which constantly exudes a sweet liquid. The head is small, beak long and tubular, eyes globular, antennæ long, body short, legs long and slender, with only two joints to their feet. Their upper wings are triangular, twice the length of the lower, and much longer than their body. They are also nearly vertical when at rest, like the sides of a steep roof. The female is sometimes without wing-covers or wings, while the wing-covers which occur are larger and more useful in flight than are the wings. Some of the Aphidians belonging to the genus *Psylla*, leap like the leaf-hoppers. But these differ from the Aphidians, inasmuch as the latter have large wings, covering the body like the sides of a steep roof, and which are also transparent. Their antennæ are long and threadlike, and tipped at the end with two bristles. At maturity both sexes have wings. Some females have piercers, with which they prick the leaves, depositing their eggs within the leaf. These wounds sometimes produce swellings or excrescences. These insects live in groups.

Aphides frequent every part of plants, from the root to the flower, and they multiply with great rapidity. They herd together in dense masses, often completely covering the more tender parts of the plant.

The tubes or pores before mentioned are a striking peculiarity, and their use is very singular, but explains the destructive character of such small animals. When the Aphid is well filled with the juice of a plant, by a spasmodic effort, he discharges a portion of what he has consumed through these pores, and as this is done in a sort of concert, by the whole group, the stems or other parts infested by these animals are covered with drops of a glutinous fluid, which become dark and appear like spots. It has been termed *honey dew;* but there is another secretion of plants, very different from this, more worthy of the name, to which it is also applied. The fluid discharged by these insects is greedily sought after by ants, who frequent the stems thus infested, and it is remarkable that while they destroy almost every kind of insect smaller than themselves, they live on good terms with the aphides, who neither seem to fear them nor to be annoyed by them. The aphides even have been known to make especial effort to yield drop after drop to a succession of ants in waiting to receive them.

Plant lice differ in form, color, covering, and length of horny tubes. The *Aphis Rosae*, or *Rose Louse*, is green, and has a little conical projection at the extremity of the body between the two horny tubes. These tubes are quite long.

Aphis Brassica, or *Cabbage Louse.*—This insect is covered with a whitish mealy substance.

A great variety of plants have aphides peculiar to their own species, as for example, besides those just named, are the *Aphis Salicis* of the willow, *Aphis Persicæ* of the peach tree, etc.

The *Aphis Lanigera* (of Hausmann) is a woolly louse sometimes found on apple trees. It is about one-tenth of an inch in length. When the down is rubbed off the surface of the insect it is found to be of a black color, except the abdomen, which is yellow. This insect is wingless. The punctures of these lice on the tender shoots produce a cellular appearance, and warts and excrescences result. The leaves turn yellow on the limb, and the disease spreads and the whole tree perishes.

For this insect, the application of spirits of tar and of turpentine, oil, soft-soap, urine, etc., are recommended. Scraping off the old and ragged bark and scrubbing the branches has proved successful. Tobacco is also a useful application. Rose bushes are often cleared of them by puffing tobacco smoke freely upon them.

Lady-birds, or the *Coccinella*, described among the Colleptera, are the natural enemies of this insect and destroy multitudes of them. The young of the *Chrysopa perla*, or lace-winged fly, are also louse destroyers. This is a pale green fly, with four wings resembling delicate lace. The genus syrphus, a two-winged fly, is another enemy of aphides. Many of these flies are black, with a yellow band on their body. They lay their eggs while on the wing, like the bot-fly, curving their tails beneath the leaves and fixing an egg wherever lice are discovered.

The young flies are maggots, thick and blunt behind, and tapering and pointed before. Their mouth is armed with a triple-pointed dart with which they pierce their prey.

By placing these natural enemies of the aphides upon a shrub or plant infested with them, it may be speedily cleared of them.

CARROTS FOR FEEDING POULTRY.

We find the following in the *Rural New-Yorker*:

"Eds. Rural:—I have never seen anything in your paper recommending carrots as food for poultry. I feed them to my fowls every day, and find it profitable to do so. In the present high prices of grain, etc., it is worth while for people to use any substitute that will answer the same purpose. I venture to say that those who have fed their fowls on carrots, chopped fine, will not readily discontinue the practice. The chopping is most easily done with a common sausage-meat cutter, costing about $3. These machines will pay their entire cost, in most families, in a single year, in various labor-saving ways. A couple of boys, in a single evening, could easily cut a barrel full of carrots, which if fed to hens, mixed with meal, scraps, etc., would be worth much more than the same value in grain, at present prices.

At the conversational meeting of exhibitors at the last National Poultry Show, carrots were recommended for general use, as better than anything else for laying hens; "chemically considered," it was said "they contain more of the substance necessary to form eggs than any other food." One of the speakers went so far as to assert that one bushel of carrots contains more food than *a hundred cart-loads* of turnips. This may be a *few* cart-loads too many, but I think their value as an article of food for almost everything in the farmer's barn and barn-yard, or his family even, is not generally over-rated, else we should see more of them raised.

One reason, doubtless, why no more are grown, is the labor and expense necessary to raise a good crop. I think the usual method of raising carrots can be improved so that the crop need not cost more than one-half what it now does. In my own practice I have managed to dispense with a good deal of labor which I once thought necessary, and I still think there is room for improvement.

Possibly you may hear from me again on this subject. Farmers, now is the time to enrich your own minds and the columns of the *Rural*, by writing out your experience in farming, and do not forget to contribute your own mite, while profiting by the contributions of others, remembering that "the withholding more than is meet tendeth to poverty." W. C.

THE SUGAR GROWTH IN LOUISIANA.

A FRIEND in New-Orleans writes as follows: I wrote you yesterday. I resume the pen to-day to correct a gross error which has crept into your September number. At page 353 it says: "*and in the year* 1765 *there was sugar enough manufactured for home consumption, and in* 1770 *sugar had become one of the staple products of the colony.*" Where the author got his authority for so stupendous an assertion the ghost of Munchausen alone can tell, if summoned by the spirit rappers. There was not a pound of sugar made in the colony at the time mentioned.

Judge Martin, who came very early in Louisiana after the cession, and who had the best means of information, for he could get it from a large number of men who were personally acquainted with the state of the colony in 1765 and 1770, thus writes on the subject in his history—page 125, 2d vol.

"Since the year 1766 the manufacture of sugar had been *entirely abandoned* in Louisiana. A few individuals had, however, contracted to plant a *few canes* in the neighborhood of the city. They found a want for them in the market. Two Spaniards, Mendez and Solis, had lately made larger plantations. One of them boiled the juice of the cane *into syrup*, and the other had set up a distillery in which he made different *taffia*."

A *few canes* for the market—*syrup*, *taffia*—but no *sugar*, as you see.

The same author continues: "Etienne Boré, a native of Illinois, who resided about six miles above the city, finding his fortune considerably reduced by the failure of the indigo crops for several successive years, conceived the idea of retrieving his losses by the manufacture of sugar. *The attempt was considered by all as a visionary one.* (Why visionary, if good sugar had ever been made in the colony?) His wife, (a daughter of Destrehan, the colonial treasurer under the government of France, who had been one of the first to attempt, and one of the last to abandon, the manufacture of sugar) remembering her father's ill success, warned him of the risk he ran of adding to instead of regaining his losses, and his relations and friends joined their remonstrances to hers. He, however, persisted; and having procured a quantity of canes from Mendez and Solis, began to plant."

This was written at a time when instant contradiction would have been given to the author if he had, in the slightest degree, swerved from the truth.

At page 131 the same author observes: "Boré's success in his first attempt to manufacture sugar was very great, and he sold his crop for twelve thousand dollars. His example induced a number of planters to plant cane."

The fact is, that before Boré's success a sort of thick sweet paste had been made in Louisiana, but no sugar—at least what we now understand by the word sugar. The reason was that the juice of the cane did not *granulate*. My grandfather, Mr. Boré, was the *first* who succeeded. See page 349 of History of Louisiana, 3d volume.—CHARLES GAYARRÉ, *in De Bow's Review.*

HEMP.

THE cultivation of hemp prospers most in northern latitudes, producing a heavy and elastic lint, which adds to its strength and durability.

The production of this article in our country has reached a high limit. The demand for home consumption and exportation keeps pace with its growth.

The manner of growing and preparing it for market is simple. The land should be ploughed down in the fall to get the winter freezes, and when the ground will permit in the spring it should be cross-ploughed and well harrowed. The seed is sown broad-cast, about two bushels to the acre, after which it should be brushed and rolled in.

The earlier hemp is planted the more valuable and successful is the crop. Hemp is a plant which, after arriving to a certain height, supports itself in its growth from the atmosphere. It does not impoverish the soil as other plants. A sandy, loamy soil is best calculated to produce a good crop. Good bottom land will answer. It is known that land which has been in seed for a length of time will produce hemp for twelve years in succession. At the expiration of that period, if sown down in clover and left standing three years, it will produce for nine years longer.

At an early period the mode of preparing it for market was to pull it up by the root, and also to cut it with a hook-shaped instrument, each of which processes was very laborious. In late years an improvement has been made by the use of the cradle, which reduces the labor. The mode of preparing it after it is cut is as follows: It is bound up into sheaves and thrown into shocks. For water-rotting it should be kept from exposure to the weather, which tends to discolor it, and thereby reduce the value. The process of water-rotting is to immerse it in pools of standing water, or so constructed as to allow the water to pass in and off, as occasion may require. The hemp should remain in the pool until the stalk becomes saturated. When this is finished the stalk will break short off, or the mucus, which holds the lint to the stalk, will become macerated, and rise on the surface of the stalk.

The time occupied for this process will require, in the months of August and September, from four to six days. It should then be taken out of the pool and spread thinly down on the ground. After drying it should be thrown into shocks, well secured at the top to prevent the weather from penetrating the center, and should remain in that condition until the frosty weather arrives, to allow its breaking out. Various modes for breaking it out by machinery have been used, but the most general is the hand-break.

The dew-rotted hemp is spread on the ground in the months of November and December, and remains so until, from the effects of the dew and rains, the stalk becomes brittle and relieves the lint, which is then taken up and thrown into shocks, and afterwards broken out.

Hemp growing is profitable, being an immediate crop, which does not interfere with the general duties of the farmer, or with his attention to other crops. A crop of water-rotted hemp is double in value to a dow-rotted one. The expense in preparing the former is not more than twenty-five to thirty per cent. over the latter.

Hemp will generally command the cash and a ready market. The average yield to an acre is about 800 pounds. For water-rotted, the price at the farmer's door for a good quality, in ordinary times, is eight dollars per 112 pounds, or for dew-rotted ranges from four to five dollars per 112 pounds.

D. M.

THE AURICULA.

About the middle of March, if the weather is fine, the trusses will be getting sufficient forward to select those intended for exhibition. Seven pips are the lowest number allowed by our Metropolitan Societies; therefore select the most promising, containing that number and upwards. Those with round buds, and nearly of a size as possible, the truss also round and compact, should be particularly selected, and if there are any monster pips among them with large oblong tubes or other deformities, remove them while young. At this stage of their growth, care must be taken in watering that none be allowed to fall into the tubes or pipe, if it happen to be exposed, as is the case with some varieties; for although the buds be so young, the meal of the eye may be formed, and if so the water will run the meal over the ground-color, and when the blossom is expanded it will be found dull and unfit for exhibition. The mealy-grass varieties require a little extra attention, for their beauty is much increased by preserving the white powder on their foliage. To obtain this object without drawing the plants more than possible, I nail a strip of wood on each side of the center bar of the frame, of sufficient width to shelter them from rain, and place the plants beneath it. By this means they enjoy a free circulation of air and light till in a proper state of forwardness to remove under the hand-glasses, or on the stage.—*L., in Gardiners' Chronicle.*

THE PROPER USE OF GUANO.

HOLLIDAY COVE, VA., Nov. 11, 1855.

"DEAR SIR:—I take this opportunity of addressing you a few lines. I feel anxious to try an experiment with guano, and notwithstanding I have been a subscriber to *The Plough, Loom, and Anvil*, I have not been able to obtain the information I desire. I wish to know how much to apply to the acre, how and when to apply it, to the best advantage, on wheat now growing. The soil on which I wish to make the experiment is a sandy and gravelly loam. I have been a reader of *The Plough* since its origin, and feel a deep interest in your success. Please give me all the necessary information on this subject through your next number.

"I remain your most obedient servant, S. N. C."

WE are very happy to reply to our friend's inquiry. If he will turn to p. 19, of vol. 6, that is, the number for July, 1853, he will find a statement of some very satisfactory "experiments with guano;" and also pp. 27, 28, of the same number. Again, in number for June, 1854, other very useful experiments are detailed at length, p. 725. In December No., 1854, p. 370, "plaster and guano for cotton" were applied in stated quantities, with remarkable results.

In our 7th volume, page 93, we copied Com. Jones's valuable statement of his use of several manures, and the results of each, and among these is guano. In the same volume, p. 223, we gave concise directions as to the use of several manures, and among these of guano.

But after noting all these references, from which much may be learned respecting the use and the results of guano, much more may be said; and it will no doubt serve a useful purpose to many of our readers, to give further formal and specific directions on this important subject.

Guano may be used in various ways. Seeds may be soaked in a solution of it. It may also be used as a top dressing to grass, and to hilled crops. It should then, like all top dressings, be scattered broadcast, either finely comminuted and sparingly used unmixed or, still better, mixed with other useful substances. 250 lbs., mixed with ten times its weight of peat, muck, or rich mould, per acre, sown broadcast, will generally be sufficient. On poor soils 300 lbs. may be used, whatever form of application is adopted. Where it is practicable, these applications should be covered by passing a harrow over the land, or even a plough, and just before a rain.

It is generally unsafe to apply guano directly to the tissues of a plant. Peruvian guano should never be so used. It is injurious both to stem, leaves and root. The other guanos may be thus applied in moderate quantities without danger, although it is not the best use of them.

In heavy soils, or with a clay subsoil, it is well to plough in guano in the fall, the process being repeated also in the spring. It is better to use small quantities often than larger quantities at once.

In gravel and sandy soils, without a clay subsoil, ploughing in is unwise, since the rains will dissolve and dissipate it.

When applied to growing crops, as wheat, it is well to dissolve a quart of guano in a barrel of water, and thus to irrigate the soil. In this form it is perfectly safe. Or it may be broadcast, as already stated.

When applied to growing corn and other hoed crops, 100 or 200 pounds per acre may be scattered around the stalks, (carefully avoiding contact with them if Peruvian or other variety rich in ammonia is used,) and then it may be covered with the plough and hoe.

When applied to trees or vines, it is found of great efficiency. When young trees are to be transplanted, large holes should be dug, and around their circumference guano to the amount of ¼ or ½ a pound should be scattered, and then covered a few inches with good mould. The roots of the tree should then be laid above this mould, and the hole filled with light soil. If the tree or vine is fixed in its soil, the earth may be dug around the trunk, in the spring, and guano be scattered in, and then thoroughly watered.

Guano may be mixed with common salt and soot in equal quantities, and with ten times its bulk of vegetable mould, muck, peat (rotted), marl, etc. But it should not be used with ashes, lime, or other crude alkalis, as the ammonia it contains *might* thereby be dissipated.

LIQUID MANURE FOR THE GARDEN.

Permit me to offer a few remarks on the valuable effects that night-soil, when reduced to a liquid state, has upon the various productions of the garden; and not a few of your readers will be aware, manures are of no use to vegetation until they are dissolved in water. When, therefore, liquid manure is used, the cultivator has less trouble, and at the same time he is applying a substance in the state in which plants can best receive it and derive most good from it.

For some years past I have been in the habit of using this description of manure to a considerable extent, and have found the results to be very beneficial; besides it prevents the necessity of applying such quantities of manure in a solid state. At the end of the season I make it a rule when turning up vacant pieces of ground to the action of frost, to lay upon the exposed soil some rotten manure, adding a considerable portion of vegetable refuse reduced to mould for such purposes. This mould is obtained by taking all the refuse possible from the garden, throwing it into a heap to rot, and turning it two or three times during the summer. The decomposed vegetable matter is admirably adapted for the growth of plants for culinary purposes.

During the winter I go over the ground intended for the Brassica family, pouring on a large quantity of this liquid, in order to allow the winter rains an opportunity of washing it down, so that the ground is greatly benefited.

The above is also applicable to gooseberry and currant bushes. I have a large basin made round the root of each, and about the end of November I apply two large pans full of the liquid to each plant; afterward I level in the earth that had been previously taken out for the purpose of forming the basin.

About the end of January, after the bushes have undergone their winter pruning, they again receive a similar supply before commencing to put the ground in neat order for the season. Raspberries and strawberries are also greatly benefitted by the use of this liquid. In applying it to raspberries the method recommended for gooseberries is suitable, and where it is applied to strawberries it increases the crop two-fold. Mr. Rivers strongly recommends it for roses. He says: "I have found night-soil mixed with the drainings of the dunghill, or even with common ditch or pond-water, so as to make a thick liquid, the best possible manure for roses, poured on the surface of the soil twice in winter, from one to two gallons at each time. December and January are the best months; the soil need not be stirred till spring, and then merely loosened two or three inches deep with the prongs of a fork, for poor soils, and on lawns, previously removing the turf. This method I have adopted for several years, and found it most efficacious."

When night-soil is not to be got, I take as next best cow-dung made into a thick liquid of the consistency of porter, and apply it in larger quantities than when night-soil is employed.—JOHN FLEMING, in *Agriculturist.*

DOCKING, OR AMPUTATION OF THE TAIL OF THE HORSE.

BY J. GAMGEE, V. S., LONDON.

MAYOR, the simplifyer of human surgery, a title as grand as it is expressive, says in his preface: "We must deplore the patients of those practitioners who are satisfied with what exists, and who make it their duty to remain faithful to eruditely exposed traditions, to learnedly introduced usages, and to habits scientifically erected into doctrines, for the exercise of our beautiful profession, and for the greater good of suffering humanity."

"Simplex sigillum veri,"

words as indellibly engraven on our minds as they are on the stone under which lie buried the ashes of their immortal author, Boerhaave, are those which sum up the doctrines to guide us in the practice of surgery. We have been born to venerate such an adage, and if it may seem that the subject chosen to promulgate our views be not a happy one, we trust to convince our readers that, enemies to barbarity and lovers of progress, we are Mayor's disciples, and pilgrims to Boerhaave's shrine.

The consultation of most veterinary works, English or Continental, and the practice we have seen adopted, *here and abroad*, to cut horses' tails off, have afforded us abundant and undeniable proof that "it never consisted of more than the cutting off a portion of the stump with brute force, and the cruel application afterwards of a hot iron to the small artery of the tail."

My father, Mr. Joseph Gamgee, who, for the last thirty years, has been in the habit of docking horses, here or in Italy, has learned by his long experience that the best mode of performing the operation is as follows:

A groom walk's up to the horse's head, standing in his stall—for it is best not to disturb the animal—whilst the tail is prepared. This preparatien is merely the separation with the tooth of a comb, or a probe, or simply with the fingers, of the hairs at the part where the tail is to be docked. The line of demarcation, by the separation of hairs, is then made perfectly distinct by the latter being properly tied upwards and backwards. The groom then holds up the near fore-leg, and an assistant holds the tail straight out behind, and with a *methodical* closure of a *sharp* docking-iron, the horse loses the end of his tail without perceiving it; the only movement generally effected is that of bending his back and momentarily shrinking. Never will a horse attempt to kick. His foot being now let down to the ground *he has to suffer no more pain*, the ligature which has fixed the hairs is undone, they are allowed to fall in their natural position and then tied together *below* the stump, rather closely up to it, but not over it, and drawn as tightly as will admit of its not slipping off unless pulled away. The morning after the operation the tail is loosened, the clot, or eschar on its cut surface, is not looked at or interfered with, the outer hairs are carefully combed out, and the drops of blood which have dried on them cleared away, and the horse is ready to go to his ordinary work.

We have a splendid lithograph in our portfolio, which strikingly depicts the barbarity and danger attending the use of the actual cautery in this operation. With blinds over the horse's eyes, a side line on his leg, a stout farrier's twitch on his nose, and a halter on his head, the sensible and frightened animal is pulling back, excited and furious, nearly sitting on his haunches, whilst the *red hot ring of iron* is being applied to the raw stump, previously powdered over with resin. The smoke and odorous fumes are blinding the operator, who is in as awkwark a fix as the poor horse himself. The print we allude to, although a masterpiece, but faintly represents the reality; and, as I was one day mentioning my father's practice to a veterinary surgeon, he exclaimed, "Ours is certainly dangerous work, and with the best care assistants or operator stands a chance to have their brains knocked out." I must mention that this was preëminently a practical man, and all practical men, here or abroad, have until now seared in docking; at least so far as we have learned, with one exception. And it is also a practical, as well as scientific man, for whom we have the greatest reverence, that said he had been in the habit of tying *over* the stump, and securing some tow between the hairs, but the practice was not found to answer in all cases. My father has often told me that he has often heard of persons tying *over* the stump, and thus inducing gangrene of one or more joints of the tail, for the pressure requisite to stop the coccygeal arteries in this way is considerable; whereas, when the hairs are tied *below*, it is the *natural hæmostatic*, consisting firstly in retraction of the and formation of a *temporary clot*, and secondly of a *temporary plug*, that comes into operation.

We have seen tetanus resulting from docking by the usual method, and heard of several cases of sloughing away of several of the coccygeal bones. We are well aware that a simple prick may cause tetanus, but it is rather strange that to my father such accidents are unknown, because the healing by granulation, under a natural eschar must be more in order than the *separation* of what has suffered by the hot iron, and *reparation* by exuded plastic lymph.

If simplicity is the undeniable seal of truth and humanity to be held in view by all operating surgeons, then there is no doubt that a clean cut is no severe operation, and tying of hair unassociated with difficulty or sensation. Some persons may say it is most humane to leave tails as they are; so it is, but men will have their horses docked, because in the sight of the world a horse with three inches taken off the end of his tail carries it better, and it looks lighter. We have heard horsemen of all kinds repeatedly say, "that horse will be all the better for having a little of his tail off," and we could not but agree with them.

But, lastly, some diseases may necessitate amputation of the tail. We admit this is extremely rare, but we have had to do it ourselves, and not only in the horse, but have seen it resorted to for a peculiar disease of the coccygeal bones in cattle. In the ox we are aware that nothing can answer better than the actual cautery, and as the operation is as rare as amputation of one of his extremities, we think it of little importance; but in the horse, had it to be performed only once in a practitioner's lifetime, the simplest and best mode should be adopted; just as if a veterinary surgeon were called upon to tie the carotid or the femoral artery, or to perform the Cæsarian operation, he should be expected to do it as a man of science as a surgeon, and not empirically, as in the days of yore.—*London Veterinarian.*

PONIES, HORSES, ETC.

"WHAT IS A PONY?" This question, it would seem from the above extract, came up again in Boston. In the mind of any one who has considered the subject, there can never arise a question. From the *Journal of the U. S. Agricultural Society for* 1854, we make the following extract.

"Applications having been made to the Executive Committee at the National Exhibition of Horses, (at Springfield, Mass.,) by owners of animals for the transfer of such animals from the class of geldings, in which they were registered, to that of *Ponies*, it became necessary forthwith to decide for the purposes of the present exhibition, what points should be regarded as constituting a pony. A committee of five was accordingly appointed by the President to consider the matter and report thereon without delay. This committee reported the following decision:

"'The committee finally determine, and recommend to the National Agricultural Society to publish as their opinion, that no animal of the horse family should be termed a pony which does not bear the distinctive marks of that breed—that is, a heavy body, short head and legs, stout neck, with heavy mane and tail, and not over 14 hands high; and that in all offers of premiums for this breed of horses, pure pony blood should be taken into account more than size and height; and such crosses of that breed with those of a large growth as comes the nearest to the original idea of a Pony, for which the Shetland should be kept in view as the type of the race. Those not possessed of the distinctive pony marks, whatever their size, should be ranked as *small horses*, and *not as Ponies.*'"

This report of the committee is not so awkwardly expressed that the idea is not discernable, and the distinctions pointed out are important to be borne in mind. The editor of the *Journal* says, moreover, "The call for a committee was rendered necessary, and the discussions that preceded and followed this appointment were caused by the fact that in some sections of our country —New-York city for example—horses of 14 and 14½ hands in height are invariably termed "ponies." Hence many had the impression that their horses of that height, though possessing no pony blood, (strictly so called,) could properly be classed as ponies. Hence, also, a native of New-York, when appealed to for his opinion as to "*what height* shall constitute a pony," promptly replied, "fourteen and a half hands and under."—*The Homestead.*

We have extracted the foregoing from our exchanges, and being quite sure that the gentlemen of this committee erred in their judgment, we have been led to ask an opinion upon the question therein involved, from one whom we are sure is quite able to give the necessary information. The response is contained in the article below, which we leave to commend itself to our readers. But it may not be amiss, here, to give a little space to explanation. In our April journal, 1855, we gave an extract of some remarks on shoeing horses—a much neglected art—in which we premised that this was a subject we knew little about, save that it was an important one, and one in which others are as ignorant as ourselves; but that we gave "place to a writer in the New-York *Courier*, who seemed to understand, at least, something about it, and who had had "an experience of twenty years in the British Cavalry, though in what capacity we are not informed." We are now satisfied on this point, and have thought that in presenting the article below, from the pen of the same writer, Captain Ralston, of the British army, we may very properly observe that on subjects relating to horses, and to that second most important of the domestic sciences, veterinary medicine, he is thoroughly versed. His own words, used to us in consequence of this remark, though at the time expressed in a half playful way, may, perhaps, best set forth this fact, and as it may be that veterinary science, the art of horse-shoeing, and kindred subjects of practical and everyday moment to the agriculturist, stock-raiser, and horse-owner, may be treated of in our journal by this writer, we are the more disposed to introduce him to our readers in his own words, used as already stated.

"*I ought*," says he, "to know more than merely 'something' about these subjects. My grandfathers were engaged in Scottish farming and stock-raising, and the cultivation of my taste for the domestic animals commenced very early. To become a contractor for horses and forage to cavalry regiments, was a bias which withdrew my father from the professional career of law; and a stable, horses, and a horse's back, thereby, was almost childhood's domain. I entered the army as a cornet of dragoons at fifteen years of age; and that arm of our service, my regiment, and soon after a command of a troop, gave me wide opportunity. Breeding, possessing, and training race-horses, and riding and hunting as much as most men, (the English inference from this latter would be comprehensive) have all contributed to practical pretensions; but my true claim and avouchment is founded on being a graduate of the Royal Veterinary College, member Royal College of Veterinary Surgeons, etc.; and that I have been in Veterinary charge of Royal Regiments of Cavalry, which includes the surveilance of the whole stable economy, hospitals, forges, the control of the farriers, etc. I have likewise been in veterinary departmental charge of the cavalry and horse artillery of one of the divisions of the army of India. From extended opportunities, then, I may assume and frankly say that I ought to know more than merely 'something' of shoeing horses." Such most surely is the full conviction of the EDITOR OF P. L. AND A.

PONIES; AND "WHAT CONSTITUTES A PONY?" AND SOME INCIDENTAL REMARKS UPON HORSES.

BY CAPTAIN RALSTON.

The poet's line that "a little learning is a dangerous thing," has acquired well nigh the dignity of an axiom; and, mayhap, this doctrine underlies all the curious perplexity which seems to have beset the question of "What constitutes a Pony?" Individuals, and as well associations, would appear to have been seeking this inquiry as if it contained some profound mystery; ignoring all the while any reference to the native source and signification of a familiar technical term.

May the writer, then, crave some little space in your columns—or a corner, so may it please you, Mr. Editor—for this, his essay to "fix" the "questio vexata;" and at the same time may he bespeak that indulgence by venturing to add with how much of appreciation and respect he has noted the aim and scope of your journal. *The Plough, the Loom, and the Anvil* presents a worthy combination, a laudable triad of subject-interests.

Occult as "What constitutes a Pony," seems to have been considered, still that the term Pony means a small individual, or class, of the division of the equine family, the Horse, can have been small mystery? Yes—but *how small?* Therein lies the sum of the whole question, the gist of the complicity; and to directly answer, leaves room for but few words; whereupon an editorially grim "verb. sat." may step in and cut short the further thread of this fragment of equine lore. Well, the answer is, "13 hands high, and under;" or, in other words, a Pony is an animal of the genus equus, not exceeding 52 inches in stature.

At no time had the term pony any reference to form, and far less to those extraordinary "distinctive marks," predicated by the Committee on Horses, at the exhibition of Springfield, Mass., held in 1854. So far from the ungainly large head and heavy body being characteristic of the Shetland Pony, ascribed as "the type of the race," that is an animal of very small size, of beautiful symmetry, with an Arab-like head. The whole conclusions of said Committee the writer respectfully dissents from, and protests against. They are in utter violation of all foregone conclusions upon what constitutes a Pony. Neither in fact nor imagination, do they typify the class. What *are Ponies* but *small horses!*" A fine pony will be well proportioned, and symmetrical, in like manner as a fine horse. In certain local circumstances this small breed is suitable and valuable; in many other instances it is convenient and ornamental; and in its limited size are almost always seen combined extraordinary comparative powers of activity and hardihood. Where it is found worth while to encourage its cultivation at all, it is desirable to do so in the same manner as should ever be the case in seeking to improve horses; that is, to foster those just and elegant proportions which confer superiority of form. The principles of the science, or those laws which ought to regulate Breeding horses, may be comprehensively reduced to a very few words, namely, "Like begets like." In the Mare, for the breeding of horses for all general purposes, let sound constitution, eyes and limbs, together with goodly form, should be sought for. In the Sire seek fine form; but let nothing compensate for the absence of pure or full blood. From good form of sire and dam, more particularly the latter, well fitted and adapted *structure—the animal machinery*—is derived; while from the brain, and fine texture of the tendons and ligaments of the blood horse, are derived those superior energies and powers of endurance so invaluable—*the motive power.* In other words, his higher physiological conditions confer not only enhanced beauty of form, but increased vigor and endurance. Moreover, for all *fast work*, the qualities of the fine skin of the Blood horse are of supereminent advantage, being equivalent to another set of lungs.

But to return to ponies. Let the pony be, as heretofore, an animal of 13 hands, and under; while to discriminate the other variety of small horses, those between 13 hands and 14½ hands, let them, as heretofore, be called "Nags;" and let the horse, proper, be all animals above 14½ hands. Why unsettle everything, and settle nothing, precise or clear, as to the past and present tense of pony-height and ponyhood.

The small stature of ponies, conversely, but in like manner with the great size of the English dray horses, or of the Flemish breed, has been mainly influenced by climate, soil and food. The rich Fen (once marshy) counties of England, and the now fertilized marsh lands of Flanders, have developed these large, heavy breeds; while in hilly and mountainous localities, and tracts scanty and bare of pasture, are found the pony breeds. The domain of the Arab is on plains; but, except on the here and there Oases, these are dry and arid, and the Arab is almost a pony; for the pure Arab of the desert is usually about and often under 14 hands.

It is, however, the Anglo-American pony that is under discussion. The Anglo-term, pony, has become absolute in significance, and is now one of universal acceptation, to denote any horse 13, or less than 13 hands in height. There is another term—that of Galloway—which has been applied to horses above 13 hands, and not exceeding 14½ hands. This term, however, has never attained that currency which pony has. It is, like the term Sheltie, of Scottish local origin. Sheltie designates the already adverted to, very small animal, of the race of the Shetland Isles; and Galloway an offshoot of similar descent, but enlarged to about 14 hands, or so, by the more genial climate, and in the more sheltered and fertilized districts of Galloway, in the southwest of Scotland.

The so frequently fine forms, and enduring action of these two races, have been ascribed, and no doubt truly, to Arab or Barb ancestry. The Spanish Jennetts had been so descended; and when a part of the memorable Spanish Armada—that vast and so-called invincible fleet, destined for the subjugation of England, in the olden time of Queen Elizabeth—was wrecked off the western coasts of Scotland, many of the horses on board these ships swam to the shore, and thence the native pony breed became crossed with that famous oriental blood, which ever confers and leaves behind so much of enhanced form and qualities.

In no manner, perhaps, can it be more forcibly seen how climate, food and shelter operate in conferring or denying size to animals, than by looking at the variety of the equine race, seen in the diminutive Sheltie, and the large, powerful blood horse of Britain. They have a common Arab or Barb origin; but the one is from 7 to 11 hands in height, and the other usually attain to from 15 to 16½ hands. This fact is replete with elements of useful reflection for the intelligent and prudent farmer and raiser of stock. In the case of animals intended to be fattened for market, and where size and early maturity involve important economies, there would be wide room to enlarge here.

To exemplify how absolute is the anglo-application and understanding of the term pony, an anecdote may not be inadmissible. The writer possessed a pony, behight "Little Harry, Mickle Hurry," that had rare qualifications of speed and endurance. He was entered for a pony stakes, for which several noted ponies were to contest. Little Harry was unknown—in racing parlance was a "dark horse"—and his entry was looked upon as of no account; but on his winning the first heat in a canter he was at once challenged as over pony height. The stewards thereupon caused him to be placed under the standard and measured; whereupon he was pronounced 13 hands and some 2 to 3 lines of height, and declared excluded from starting for a race as a pony. The challenge, however, not having been made *before* the heat was run, the second pony was not allowed to claim, and the race was decided to be run over anew. Like most ponies, Little Harry had hard and strong hoofs; and this enabled his plates (light shoes used in racing) to be taken off, and the rasp to be applied to reduce the depth of his hoof, so as altogether to bring his height down some 4 or 5 lines. At the signal for saddling and weighing, he was again got ready, and to the surprise of his competitors appeared at the post; started under protest, and again won the heat; but this time, on being placed under the standard, he was admitted to be under 13 hands—a genuine pony—and then won the race in easy style. This little horse, some short time after, the writer matched to gallop 19 miles in an hour, carrying 9 stone 7 lbs; and he won, with nearly three minutes to spare. He could canter free and true carrying a rider of 16 stones or 224 lbs.

Some facts of the various British breeds of ponies may not be out of place.

1st. The Galloway, though not a pony proper, is akin to that race, and, as already observed, takes his name from the district which had become celebrated for this kind of nag. The breed is now nearly locally extinct. It was famous for speed and stoutness; was very sure-footed, and on that account of much value for traveling over rugged and hilly districts. As previously mentioned, its beauty and spirit was undoubtedly derived from the Spanish or Moorish jennets. The native Galloway breed, *however*, on which the latter stock had been grafted, must have been *good, inasmuch* as we learn that Edward I. of England sought after and *imported* great numbers from Scotland. The height was usually about 14 hands, and the color bright bay and dappled brown; the head was small, and well set on; and the leg-bones, under the knees and hocks, were flat, and in character clean and sinewey, as is so remarkedly the case in the Arab. Some extraordinary feats of speed and endurance of fatigue could be related of this race; but limit of space and time interpose.

2d. The Highland Pony is generally a cross-made animal; head large; short fore-legs and long hind ones. It travels upon ascents so well as, in the Scotch Highlands, to be very serviceable, and is very cautious in traversing boggy or unsafe places.

3d. The Shelty abounds on the Shetland Islands, and is found on all the islands of the north and west of Scotland, and also in the mountainous tracts of the mainland, where close to the coast. It ranges from 7½ to 11 hands in height, is beautifully formed, and possesses amazing strength for its size; head small; the mane long and flowing, and the full tail brushing the ground; the back is short, the quarters lengthy and powerful; the legs flat, firm and clean, with small and well-formed feet. It is a high-spirited, courageous, and tractable little animal; in fact, a magnificent miniature horse. On one occasion, a Shelty between 10 and 11 hands high, was matched to go from Norwich to Yarmouth and back, 44 miles, in four hours, and he accomplished it in three hours and forty-five minutes, with ease.

4th. The Welsh Ponies, it is supposed, were introduced into Wales through the early commerce which existed with their Celtic brethren of the north of Scotland. The race has been improved in size, by the introduction towards the end of the last century of a well-bred blood horse, Old Merlin. Hence, the term "a Mountain Merlin" is not unfrequently applied to these ponies.

5th. The New Forest Ponies are bred wild in that ancient Royal Forest and its vicinity. They, also, are assumed to have had their origin from horses of the Spanish Armada, another portion of which was wrecked on the New-Hampshire coast of England. Marsk, a small but famous race-horse, was so little valued for the stud, that he was suffered to run wild in the New Forest, where he improved this breed. But his destiny was wonderfully changed, when that extraordinary race-horse Eclipse made his appearance, against whom no horse in England had a chance, whether in long or short races. He was a chance get of Marsk, and the discovery of his great racing powers at once withdrew his sire from his wandering forest life, and elevated him to the very highest role of the Stud. His fee for many years was $500 each mare, and he got many of the finest race-horses on the English turf of that day.

6th. THE EXMOOR PONIES are raised in and around an old forest of that name. They are mean in appearance, but hardy and useful in their way.

7th. THE DARTMOOR PONIES are similarly raised, in the precincts of an old chase. They are not usually handsome, but on one occasion a very handsome pony was seen among a wild herd, and a gentleman determined to have it caught. With the aid of several men on horseback, he got it separated from the herd, and drove it up one of the rocky hills, there called a Tor, and into a corner; but the pony seeing no other way of escape, made a desperate leap over, and fairly cleared one of the men on horseback; and clattering at speed down the hill, rejoined the herd. In the beautiful and picturesque district of England here spoken of, many of the farmers are even to this day without a single cart, car, or wagon; and the whole produce of the farm; all manure, everything, is carried in panniers, on the ponies' backs.

The above gives some notion of the races of ponies in Britain; but is a very meagre sketch.

Of the CANADIAN PONY, it may, perhaps, not be irrelevant to observe that it partakes somewhat of the nature of the Galloway. It was originally introduced from Normandy. The Norman horses are small, active, and hardy; and so is the Canadian, and both often display good trotting action. It is an interesting fact to remark how this small and good type of the horse family likewise claims oriental descent. In the time of the crusades, Normandy supplied more than her quota of chivalry to that misdirected, but grand and singular exhibition of human enthusiasm and enterprise; and those of her leaders and knights who regained their own land once more, having discerned in Palestine the rare powers and great value of the elegant, gallant little Arab horses of the desert, so full of energy and action, brought home fine specimens, from which have descended the present compact and hardy Norman type. At the same period and from the same source the English horses appear to have been improved. The modern blood or thorough-bred horse of England, however, is a descendant of Arab and Barb blood, introduced during 130 or 140 years preceding the present century, and the lineal purity of which is maintained with unfailing solicitude. The oriental qualities are the same, but much greater size and higher speed have been attained by care, keep and judicious crossing. During the present century few Arabs have been imported, and it is not supposed they can now improve the thorough-bred horse. No breeder would resort with a turf mare to an Arab for a cross. Still it is interesting to see how this race has been the basis of all improvements. The Arab himself, or his descendant, the purely-lineaged thorough-bred blood horse, are the only sources of true improvement for the general breeds of any country. Farmers, breeders, and all interested in raising the latter most generally useful class of horses, should well ponder upon and inquire into this subject. Wherever the true Blood horse has alone been relied on for improving the mixed or general class, there this breed has progressively improved. But wherever half-bred stud horses have been trusted to, a degenerated race has followed. JOHN C. RALSTON.

NEW-YORK, 20th Nov., 1855.

CAVALCADE OF TRUCKMEN.

One of the finest shows, to be seen anywhere and at any time, is the corps of Boston truckmen. A friend by our side counted 625 horses. They entered the grounds at about 10 o'clock, led by Col. Peter Dunbar, as their chief marshal, accompanied by a band in a large wagon drawn by six splendid black horses. White and light gray horses, 200 in number, formed the first division; next came the dark grays, reds, bays, and blacks.

EXHIBITION OF WORKING OXEN.

At half-past ten about twenty yokes of these animals were driven over the track, though many belonging to this class were not removed from their stalls.

EXHIBITION OF STALLIONS.

This was a fine display, and succeeded the show of oxen. This was followed by

VOLUNTEER TRIALS OF SPEED.

But no horse of eminent speed appeared in this contest.

After dinner the spectators were highly gratified by an exhibition of some of the finest horses upon the grounds. The famous blood horses Trustee, Logan, Fashion, Matchless and Tricolor tried their paces round the track.

This was followed by an exhibition of breeding mares, twelve of which appeared on the course.

The third trial was one of speed, open to all horses that had never trotted for money.

FOURTH DAY.

The morning of this day was occupied by an exhibition of horses on the track in modes and styles according with the fancy of their owners and riders. At 10 o'clock

A GRAND CAVALCADE

came off, led by the marshals, and consisting of horses led by their grooms, breeding-mares and their colts, horses of all work, in carriages; these were followed by matched horses, 48 in number, in carriages filled with gentlemen and ladies, and by the trotting horses. The whole number is reported at 127. The cavalcade filled the entire circle.

THE DRAWING MATCH.

At 11 o'clock this trial came off. The load was 6,100 lbs. It was drawn a given distance, and then it was *backed* to its original position.

A TRIAL OF DRAFT HORSES

was also made at 11 o'clock, in which several splendid horses exhibited not only immense power but wonderful docility and a finished education. The slightest intimation of the teamster was sufficient to secure just such action as was desired. The teams of Col. Cowdin and of the E. B. Sugar Refinery Co. were among the most remarkable.

A TRIAL OF SPEED

by fancy matched horses took place at 11½ o'clock. There were five matches, and the spectators were very much gratified by the show.

THE BANQUET.

The procession of guests at the banquet was formed at a quarter before two, and proceeded from the President's tent to the mammoth tent in which the banquet was provided. Here all the arrangements gave evidence of good taste and practical skill. The tent was decorated with the flags of various nations. The dinner, provided by Mr. Wright, was well prepared and abundant. Between 2000 and 3000 ladies and gentlemen partook of it.

By invitation of the President, Mr. Wilder, a blessing was invoked by Rev. Dr. Lothrop, of Boston. After the completion of the feast, Rev. Dr. Kirk returned thanks.

The richer feast came next. The President arose and made an admirable introductory speech, substantially as follows:

"*Brother Farmers and Fellow Citizens*:—Your presence on this occasion affords me unfeigned pleasure, for it gathers around me the friends and patrons of agriculture. Most sincerely do I rejoice with you in the lively interest which is manifested by all classes in our exhibition, especially in the presence of our honored guests, whose attendance gives importance to our meeting, and whose voices are ever grateful to the ears of their fellow-citizens. [Cheers.]

"It is also particularly gratifying to meet at this festive board so large a representation of the mothers and daughters of our land, who have come up here to cheer us by their approving smiles and to honor the primeval pursuits of man. Ladies we greet you with a most cordial welcome. [Loud applause.] Nothing can be more appropriate than your presence. Nor is it a new thing in this pilgrim city for *woman* to be engaged in industrial exhibitions. More then a century ago, three hundred of your patriotic mothers assembled on Boston Common, each with her spinning-wheel and distaff, to advance a branch of domestic industry which has long since been supplanted by the progress of invention.

"One of the most interesting incidents of this exhibition relates to the spot on which it is held. This whole territory is land redeemed from Neptune's dominions. Here modern enterprise has literally fulfilled the words of Scripture, and has said to the surrounding hills, "be ye plucked up and cast into the sea," and they have moved in obedience to its command. Here, where but yesterday rolled the ocean's wave; here, in the middle of the nineteenth century and in the midst of this populous and flourishing city—the National Agricultural Society has come up with its flocks and herds, pitched its tents, and invited you to unite in celebrating the triumphs of art over nature, and to witness the achievements of science in a most important department of husbandry.

"In behalf of those whom I have the honor to represent, and in my own behalf, I tender the grateful acknowledgments of this Association to the municipal authorities of Boston for their prompt and hearty coöperation in the preparation, for this exhibition. [Applause.]

"Our thanks are also due to the patriotic citizens of this metropolis and its vicinity for their private munificence in the creation of a guarantee fund to insure the success of this enterprise. Nor would we be unmindful of our obligations to the Massachusetts Society, a pioneer among the agricultural associations of our country, and to other benefactors for the aid afforded us by their liberal donations and timely exertions. We are also under great obligations to the contributors who have placed their valuable stock on exhibition at no small risk and expense—to the marshals, judges and others who have aided in carrying forward the enterprise to its present happy consummation. [Cheers.]

"Fellow associates—I congratulate you upon the complete success which has crowned another exhibition of this Society. The present has surpassed those that preceded it in interest and utility, and awakens the most pleasing anticipations of those which are to succeed. The record of these proceedings will constitute an important chapter in the history of American agriculture. A very large number of entries have been made. But our principal object has been *quality*, not quantity; and it is believed that for points of excellence, this exhibition holds the pre-eminence among those of our own and other lands.

"All other productions of agriculture and the arts have been excluded from this exhibition in order to concentrate the attention of the public upon a department deemed of paramount importance to the farmer, and to afford our fellow-citizens the most favorable opportunity to examine the best domestic animals which have been obtained by gentlemen devoting to this specific object their time, talents and fortunes.

"Another prominent object has been to awaken in the public mind a just appreciation of their labors, and a stronger love for agriculture and rural life. How delightful the occasion! How salutary its influence! Here the rough animosities of party strife, the asperities of political discussions and the bitterness of sectional jealousy are merged and lost in the love of a common pursuit and a common country, and in proportion as we act in concert and harmony for the advancement of the great industrial arts in life, we cement and strengthen the bonds of our glorious Union. [Enthusiastic cheering.] Here we witness an illustration of the power of voluntary associations, the grand characteristic of our age, the great engine which propels the car of modern enterprise.

"The time is within the recollection of some who now hear me when the first agricultural society in this country was established. This honor belongs to Philadelphia, whose society for the promotion of agriculture is honorably represented at this board by a large delegation. A subsequent year witnessed the organization of the Massachusetts society for the promotion of agriculture, also here represented by worthy and illustrious members. Others soon followed, and now they are numbered by hundreds, extending from Maine to California, from the British provinces to the gulf of Mexico, whose delegations we are happy to meet on this occasion, and whose annual exhibitions have become the great gala days of the people.

"Ladies and gentlemen: on this third anniversary of the United States Agricultural Society, it affords me peculiar pleasure to welcome you to this commercial metropolis, and to the pleasures of this festive and intellectual entertainment.

"We, of New-England, cannot boast of a luxuriant soil like that of the prairies and valleys of the West, nor of a genial clime like that of the sunny South; but industry constrains our reluctant soil to yield its increase; and though prominent among our exports are granite and ice, yet these are no indications of the hardness of our hearts, nor of the coolness of our affections."

It would be a delightful service to present the entire speeches of Messrs. Governor Gardner, Governor Hoppin, of R. I., Mayor Smith, McIntire, of Philadelphia,—a beautiful address, abounding in classical allusions,—John C. Gray, Winthrop, Everett, Thompson, of Canada, John A. King, of N. Y.; but they would exclude all other matter. They were appropriate, chaste, and eloquent, and afforded a treat not often enjoyed.

FIFTH DAY.

Trotting matches formed the chief attraction on Saturday, and ere, nightfall the vast concourse of people retired from these busy scenes delighted and profited. Perfect order prevailed from first to last. Not a single act of impropriety, to our knowledge, occurred from the beginning to the end. For this Mr. Wilder and Gen. Tyler with his aids deserve great praise.

SHOW OF CATTLE.

Animals entered for exhibition were arranged according to blood; as, Natives, Grade animals, Jerseys, Ayrshires, Devons, Herefords and Durhams. Fat cattle and working-oxen had each their own row of stalls. Swine were distinguished also; as, Berkshires, Essex, Suffolk and Mixed. Sheep were grouped according to breeds; as, South-downs, Spanish Merinos, Silesian Merinos, Leicesters, etc.

It is not our intention, even had we the ability, to pronounce upon the comparative merits of all the animals presented for premiums. This is the business of the several committees. Neither do we purpose to give their reports on these points. We do not advertise in this form. Where there are reasons for presenting certain animals or things to the attention of the public other than the benefit of their owners, we give freely all the space required for such notices. We wish to apprize our readers of all new and improved processes, all facilities for securing advantages in agriculture and the industrial arts, newly discovered or generally unknown. Hence we publish particular accounts of many new inventions, newly imported animals, etc., etc. Besides, those who expend much time or money for the purpose of adding to the pleasure or profit to be derived from fairs, deserve especial and personal commendation.

Hence we make special mention of the following choice animals, exhibited on this occasion:

Mr. B. V. French, of Braintree, Mass., had a large number, of excellent cattle of various kinds, and, like everything he has on his farm of excellent quality. Among these were working-oxen, cows, calves, bulls, etc.

Mr. L. G. Morris, of Westchester, N. Y., had a large number of excellent animals on exhibition. A cow—Edith—with a calf, was a very fine animal. A dozen pens were occupied by the imported cattle of this distinguished farmer. His South-downs were also of excellent quality, both ewes and bucks, and he also exhibited several excellent swine of the Essex and Berkshire breeds.

Mr. Buckminster, of Framingham, Mass., editor of *The Ploughman*, had a great number of Devon cattle, many of them very fine animals.

Mr. Thos. Motley, of W. Roxbury, exhibited a large number of his famous Jersey cattle. This herd is well known to all stock raisers as one of the finest in the country.

Mr. C. S. Wainwright, of Rhinebeck, N.Y., exhibited a herd of eight Devons, some of remarkable excellence.

Messrs. J. & J. Stickney, of Boston, exhibited several fine specimens of Suffolks, from their well known and extensive herd of swine.

Mr. W. Chamberlain, of Ducthess Co., N.Y., occupied seventeen pens with his Silesian Merinos. They were beautiful specimens of fine fleeces.

A large number of entries were of single animals, and most were of less than half a dozen. To specify even those of special excellence would be a great labor. Those above named are worthy of commendation for the *amount* as well as for the quality of their contributions to this great show, and several of them deserve especial praise for bringing these animals a great distance. Such transportation, even with the aid of our railroads, involves a considerable expenditure of time, risk and cost.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

LAMOILLE COUNTY FAIR, VT.

The Lamoille County Fair was held at Hyde Park, September 26th, 1855. The Ninth Annual Fair of this county was well attended, and went off to the satisfaction of all. The animals exhibited were numerous and of a superb quality. Oxen bear so high a price, all that can be purchased are bought and drove off; only sixteen yoke were present. Three-year-old steers, two-year-olds, yearlings, and calves in the yoke, were numerous and fine, some calves as large as most yearlings. Forty-three premiums were awarded on neat cattle. Splendid specimens of bulls from six years old to calves. A large collection of first-rate horses, mares with colts by their sides, brood mares, geldings, three, two, and one year old. Five stallions, four spans matched horses. Twenty-seven premiums were awarded on horses. Of sheep, swine, and poultry, good specimens were present. The exhibition of dairy, honey, and sugar, was creditable; of fruit, good; garden vegetables of mammoth size.

Manufactured articles and needle-work were exhibited in great variety, and many specimens were creditable to our mechanics, male and female.

Hyde Park, 27th Oct., 1855. Ariel Hunton.

ANNUAL EXHIBITION OF THE AMERICAN INSTITUTE.

We have had but little opportunity to re-view the large collection of machines and other mechanical contrivances collected in the Crystal Palace, but we here describe a few of the articles which seem to us quite worthy of notice.

THE EXPERIMENTAL STEAM CARRIAGE,

And several designs for steam carriages for various uses, by J. K. Fisher. attract much attention; and should be carefully examined by all who are willing to aid, in the only practicable way, to relieve the streets of this city from the crowd of carriages and from filthiness. The government will not, in our time, keep the streets clean; and no government can keep up to a civilized standard of cleanliness while horse power is used, unless the streets are swept every day.

It has been ascertained, by analysis, in London, that full one-third of the street dirt is dropped by the horses; and nearly all the rest is worn from the pavement—a trifle being allowed for the iron worn from the shoes and tires, and for that portion of the shop-sweepings that does not originally come from the street. And it has been found that for one pound of iron worn from the tires of a cab of 10 cwt. seven pounds are worn from the horse's shoes. Hence it appears that only a twelfth of the dirt is made by the wheels, of a vehicle as heavy, in proportion to the motive power, as an omnibus.

It has been found that a steam carriage can draw behind it, at six miles an hour, five times its own weight; and that when the machinery is in the carriage that carries the passengers, the total weight is less than when there are two or more vehicles. From all the foregoing, it appears that the dirt made by steam carriages on stone pavements will be less than a tenth of what is made by horse carriages of the same power. It scarcely need be added that the dirt worn from the pavement and tires is of a less offensive quality and less liable to be blown about than that made by horses.

We have in former numbers shown, by extracts from Scotch journals, that cast-iron paving costs 6 per cent. less than stone paving in Glasgow, and 40 per cent. less in London, and that its durability is much greater. But, it is said, horses slip upon it. If steam carriages come into use, this paving will follow, and no *dirt* will be made. The streets may then be always cleaner than it is practicable to keep houses while the dirt from horse-power is blown and tracked into them.

The power required to draw a ton on the best stone pavement is 31½ lbs., on iron it is 7½; and the wear of vehicle and pavement is in proportion to the power expended when the material is the same. But iron neither suffers much wear, nor grinds much from the tires that run upon it. We may therefore conclude that the wear of wheels and pavements, and the expenditure of motive power, would be less than a fourth of what they now are if steam should supersede horses; and that there would be no expense for cleaning, for the rain would keep the streets always cleaner than they ever are now made and can be made while the pavements are rough.

All this is nobody's business—that is, nobody will assume the trouble and expense of providing a remedy for this state of things, because individuals will not get paid, and the government no more thinks of doing it than it thinks of reflecting downward, for the use of the city, the gas-light that now goes off to the fixed stars. The questions with speculators is: "Can we secure a monopoly, so that others may not build and run steam carriages, and perhaps run us down as soon as we have shown that they are economical?" The question of taxpayers should be: "Will a few thousand dollars hazarded in a liberal experiment save us the greater part of $1,300,000 per year, for paving and cleaning streets—in a shabby way?" Finally, the question of every man and woman should be: "How much per year, in washing and scrubbing out clothes, may be saved, without lowering the standard of manliness, if the present motive power be superseded by a power that will make no dirt?"

In answer to the speculators' question, we say: Yes, we have examined the subject, and are satisfied that Mr. Fisher has made such improvements as will secure a virtual monopoly, and a very profitable one. To the taxpayer's question we answer: You will save $600,000 per year, and make your property so attractive that people will live in town who now seek health and comfort in the country, and thus your property will become more valuable. And to every body's question me say: The cost and wear and tear by washing, brushing, etc., is probably two millions a year more than would be required for equal cleanliness if steam carriages were in general use.

Moreover, the best engineers in England have testified that steam carriages are safer, and in all respects more agreeable than horse carriages.

The design of a private carriage, suitable for physicians or others who have to ride much, ought to be put into execution. Mr. Fisher proposes a subscription of $1,600 to build it—the fund to be disposed of at a private meeting held for the purpose; so that it may be built to suit the tastes and wants of the person who is to have it. The cost of running it will be trifling compared with that of horse-keeping; the comfort of it will be great in cold weather, as it can be warmed by steam, as the ferry-boat cabins are; and the speed, when on a country road, will exceed that of the best horses. As a guarantee that it shall perform well, Mr. Fisher is willing to pledge a collection of copies from the best paintings in Italy, which are worth more than double the sum required. We think the project *safe*; but we hope that liberal men will subscribe, even though they may deem it a liberal hazard.

PIPE AND TUBE MAKING MACHINERY.—Webster's Patent is a new invention now exhibited for the first time. The rolling is done on the inside of a large open cylinder, within and to which a couple of small rollers are geared, between which a mandrel is placed to give form to the tube. The inventor states that 10,000 feet of tin tubing may be formed in one day by a single man. 250 feet is an ordinary day's work. This improvement is applicable to the making of locomotive tubes, stove-pipes, etc. It does the work well, and is very simple in construction. Webster & Miller, exhibitors, 67 Nassau street, New-York.

HAND CORN PLANTER.—This implement is the invention of Fenwick & Bucklen, of this city, and is small, and would easily escape notice, but presents an exceedingly simple arrangement for forming the hole in the soil, dropping the desired number of grains of corn into the same, and then covering them up. In operating, an up-and-down movement of the tube is necessary. The end of the tube is thrust down into the soil and makes the hole, it also takes up dirt enough to cover the corn; by the act of raising the planter out of the soil, the corn is discharged and covered. This machine, in its construction and operation, is said by the inventors to be better than those in use from the fact of its employing a swinging or turning seed distributing plate instead of a horizontal sliding one. The covering device is very simple, and the whole contrivance is much cheaper of construction than any other in use, as it costs but a dollar and a half. Coleman & Williamson, 6 Wall street, N. Y., agents. It was patented in 1855.

THE ROTARY LOCK is guaranteed by the makers as a security "against the most skilful lock picks," which is true no doubt to a certain extent, though no lock that we know of approaches the famous Day & Newell's Lock, but this is very expensive. The rotary lock is comparatively simple, having six tumblers, with a peculiar key—flat, with six prongs; carried conveniently in the pocket, and the bolt, being double, clasps the staple, or rather its equivalent, and releases its hold on the slighest pressure on the knob from the inner side, or by the key on the outside. We should like to give a view of this, and may do so hereafter.

AUTOMATON GATE.—We are much inclined to adopt the claim of the patentees, who say it is "the only practical self-operating gate ever invented. It works admirably in the Crystal Palace, but we have not been initiated into its inner mysteries to judge of its durability or its liability to get out of order. "It is readily attached to any gate." As you approach it in a carriage, you extend your hand to a small lever by the side of your path, and the gate instantly opens. Leaving it, you touch a second lever, and it closes and fastens itself.

SELF-VENTILATING REFRIGERATOR.—This is designed to secure a constant ventilation, without raising the temperature of the air enclosed. The current passes in at one end, flows by a mass of ice, becomes cold, flows under a partition into the main part of the refrigerator, and escapes as it entered on the opposite end. It is highly commended.

INDUSTRIAL EXHIBITION AT BOSTON, MASS.

This capital show, now open in Bowdoin Square, had its origin in the energy and activity of a few working mechanics, by whom it has been carried out until it has become one of the best exhibitions of the kind we have ever seen.

The grand feature of it is its variety of new and useful mechanical inventions. The show of fancy articles is very limited, and might well have been omitted altogether. So also the departments which usually come under the supervision and management of females, are too small to attract much notice. Were all these absent it would give a unity to the exhibition which would to us, under the circumstances, be peculiarly pleasing.

We were unable to spend more than two or three hours, while we should have been glad to devote as many days, to the examination of its attractions. A very concise notice of what came under our observation is all that we are able to give, but we would be glad to publish descriptions of other machines if furnished by those who are familiar with them. The first object that particularly attracted our attention was

A Patent Hand Drill, by G. S. Harris, designed for boring iron or wood. Its use is similar to the small drill used by watchmakers, etc., with a bow; but in its original form the drill is moved alternately in opposite directions. In this, by the simplest contrivance, it is made to revolve continuously in one direction. This is a great improvement.

Burglar's Alarm.—Near the preceding stands a capital contrivance called "Brown's Patent Burglar's Light Alarm Apparatus"—a name by far too long and cumbersome for so capital a notion. When this machine is properly attached to a door, the door cannot be opened without ringing a bell and lighting a lamp. It may well be applied also to other uses than he exposure of burglars. The alarm is so sudden and so thorough, that it may very usefully be put in requisition for calling any lazy sleepers, for waking physicians, etc. It is not only useful, but cheap, and easily attached.

Hand Stamps.—Two inventions, having the same application, stand upon this first table, both excellent designs for stamping letters, cards, etc. One is well contrived, with inkstand, etc., and costs some six or eight dollars; the other is more simple, and costs only about half as much. One of these is by the American Stamp Co., and the other is called Harris's Hand Stamp.

American Rock Drill.—This ingenious machine consists of a drill spindle, which is supported by a frame, and is raised by the action of two grooved wheels or cams, and is allowed to drop when at the proper elevation. The drill is turned by the action of two other wheels. This is worthy of a more extended notice. It is run by horse-power, and is said to be capable of drilling holes six inches in diameter, and at the rate of two feet per hour.

Patent Loom for weaving Bags.—Mr. A. Brigham, of Manchester, N. H., has here a capital contrivance for weaving seamless bags, of any size. It is accomplished by a slight alteration of a common loom, "by attaching a lip on one cam with one of the treadles to slide, for the formation of the bottom of the bag." Mr. B. has here provided the public with a cheap, simple, and durable contrivance for the manufacture of articles universally required and needed constantly. Pillow-cases may be woven entire by the same loom.

Warner's Curvilinear Sawing Machine.—We should like to exhibit this beautiful machine to our mechanical readers. It will saw almost any conceivable form, on two sides. Two saws are hung upon swivels, which are guided by a pattern, with a self-feeding movement. It will cut O. G. pillars, Gothic and Roman window heads, chair stuff, piano legs, twisted stair rails, circular, ecliptic, etc., felloes, plow beams, etc. A large machine would dress ship timber to any pattern.

Outside Window Blinds are managed with the same ease as a common inside shade, by a contrivance of Mr. Sanger, of Watertown. The cost, if we recollect, is only some $15 to a window.

Planing Four Surfaces.—This feat is accomplished in a very workmanlike manner by a very simple invention of Mr. Killam, E. Wilton, N. H. The planes are rotary. Two sides of the timber are planed simultaneously, and as the timber advances it meets two other cutters which complete the process. It is applied to any desired size, from an inch square or less.

Whipple's Self-acting Nipper Blocks.—This unmeaning name is attached to a capital contrivance. The proprietor commends it as a labor-saving machine. Its greater recommendation seemed to us to be its security from danger. A ratchet wheel is affixed to the wheel of a common pulley, by means of which the weight is held in its place, without requiring a constant draft upon the strength of one who is operating it. A bale of goods will hang suspended anywhere between the lower floor and the upper loft, without danger from the slipping of the rope, or the carelessness or want of strength of those employed in its management.

Hotchkiss's Patent Self-adjusting Screw Wrench seems to us one of the best of the many forms which have been given to this very important tool.

Smith's Patent Machine for Mortising Blind Stiles is a very simple and yet effective machine. It can be managed by a boy, and will make thirty or forty mortises per minute; can be set for any depth, and at any angle of inclination. It is a capital contrivance.

That in which the whole community has the most direct interest is

The Atmospheric Telegraph.—This invention, by which it is proposed, as our readers know, to convey packages, mails, etc., from city to city, with a rapidity exceeded only by that of electricity, is seen in this exhibition in Bowdoin Square. Mr. Richardson, a son of the projector, is in attendance, with another assistant, and furnishes all possible opportunities for observing the principle and the action of the machinery. We, long ago, came to the conclusion that this plan is perfectly feasible. We were convinced that by the action of an air pump, as a condenser and a rarifier, the most rapid movement of a hollow piston in a properly formed tube, may be secured for almost any desirable distance. Such a result has in fact been obtained through a tube a mile in length, the piston passing through the entire distance almost in a second of time.

The subscription books are now open for the organization of a company for the purpose of erecting a telegraph of this kind between Boston and New-York. Its friends are sanguine that their object will be secured very speedily in the completion of the telegraph as far as Worcester, 45 miles, and the success of this section will be an entire guarantee of its success for any distance. We earnestly commend this subject to the friends of progress, and even to those who would make a profitable investment of their funds. We cannot doubt its ultimate success; and, if successful, it will be in our judgment the most lucrative stock in the country. Nor is this the limit of its possibilities. That hollow cylinder which can carry a large mail-bag, why may it not also carry a living man? Air enough would be contained in his confined quarters to support life for some minutes, and this would be all that would be required in a progress of fifty miles. This of course could not become a common mode of travel, but might be resorted to in emergencies.

Harris's Patent Portable Circular Saw-Mill seems a valuable invention. It may be adapted for mitering, bevelling, tenanting, etc., and, it is claimed, requires only half the power necessary in other arrangements. It may be adapted to steam, horse or hand power.

Improved Stump Extractor.—This looks like an old friend with new and modern dress. It is, at any rate, very efficient.

Spring Beds.—Of these there are more new varieties than we have seen elsewhere for some time. One is a bed of spiral springs, suspended within the bedstead, over which a covering is laid upon which the mattress rests. It has a hinge for raising the head. Another is formed by coiled springs at each side of the bedstead, supporting slats, which support the mattress. A third and very cheap form consisted of two cords drawn tightly from the head to the foot, on which slats were laid. Besides these,

Plympton's Secretary Bedstead is exhibited, which we have mentioned in our account of the show of the American Institute.

Hay and Straw Cutters are represented in considerable variety. Among them are Gales's Eagle Cutters, for hay, straw and corn; the Patent Excelsior, for the same; and the celebrated self-sharpening hay-cutters, etc.

A Shoe Pegging Machine works well and rapidly. The shoe is placed upon a movable feeder, and brought into position under the awl and hammer, which are set in motion by steam or foot power. The awl first perforates, then a knife is made to split off a peg from a strip of peg timber, which is fed up by a counterpoise, and put in position for the hammer, which is instantly made to come down with an elastic sort of blow like that dealt by a living shoemaker. It is neither pushed in nor driven like a pile. The machine drives two rows at once alternating from one to the other, or a single row, as desired, and will travel entirely around a good sized shoe in two minutes.

Woodworth's Cordage Machine, or rather machines, almost literally contract that longest of factories, the ropewalk, into a nutshell. First is a spinning machine, with compound fliers, which gives the hemp three distinct twists as it passes on to a twine spool. The spools of spun yarn are then placed on three sets of triple reels, which are made to revolve each on its axis and all around a common center. Each center gives a twist. In this manner twist is gained to compensate for what is lost in the lay of the strands.

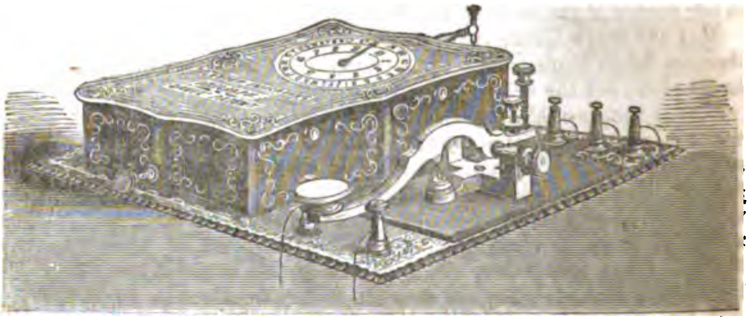
Oscillating Engines.—A small oscillating engine of Messrs. Trowsley & Reed is peculiar. It is mounted on the top of a common tubulated locomotive boiler. Its peculiarity appears to be that the steam is not admitted to ports in the trunnion, but from a steam-box which encloses the trunnion into ports in the contiguous portions of the cylinder. The advantage gained by this arrangement, in applying the oscillating principle to small engines, will be quite obvious to practical men.

Another oscillating engine, of which a working model is on exhibition, is that of Mr. Juan Pattison, of New-York. The steam-box is not connected with the trunnion at all, but is arranged above the cylinder, like a saddle.

The exhibition occupies three stories of the building, and all the heavy machinery is propelled by steam power. The ground floor is almost entirely taken up with heavy machinery. In this department will be found a chronometer engine, manufactured by J. A. Reed, of N. Y.; burr mill stones, from B. F. White; a variety of weaving apparatus, from Davis & Thurber, of North Andover; stoves, from J. M. Reed; soap stone hearths, fire places, etc., from Wm. H. Warner; plain and carved tables, chairs, etc., from the Massachusetts Moulding, Wood Cutting and Turning Company; safes, from Marland & Co.; carriages, from A. J. Gibson & Co., of Clinton, and C. A. Hamilton, of Boston; harness, from William Kelms, of Boston; a magnificent carved sideboard from Jas. G. Blake, Cornhill; iron railings, fences, etc., from Chase & Co.; and specimens of india-rubber manufactures from Geo. N. Davis & Brother.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

LETER-INDICATING TELEGRAPH.



DAVIS' PATENT.

The inventor of the "Letter-Indicating" or "Railroad" Telegraph being desirous of placing before the general public a *sure* and *practical* mode of preventing accidents on railroads; and being convinced that all those accidents which have resulted from prior accidents, or from detentions to trains, might have been prevented by telegrapic communication—provided the *mode* and *instrument* by which the information of any derangement to a train or to the railroad, or of any disaster, was simple, practicable, sure, and *perceptible* to the intelligence and capacities of the operatives on railroads—"*without previous study*"—has, therefore, invented the "Letter-Indicating" or "Railroad" Telegraph *expressly* for the prevention of collisions and accidents; and for the transaction of the general business of railroads.

The construction of this electric telegraph is so permanent, and the novelty of its operation so simple, that it is not liable to derangement, and by fair usage, it is not possible to put it out of adjustment.

The mode of operating it also is such that any engineer, conductor, breakman, depot-master, ticket-agent, or master of repairs on the railroad track—"*without previous study*"—can correctly operate and accurately communicate by it.

This telegraphic instrument is not impelled by a weight, or a spring, or any local power—but by the power of the electro magnet. It will correctly operate in any locality or position; on or in a car, in the hands of the operator, or on the ground, as well as in an office. It never requires winding, being always in order when the batteries are charged. It may be carried in a train by engineer or conductor, or in hand-car by a master of repairs of the railroad track, and used at any point when an accident or a detention to a train occurs, or when and where it would be of service to the road-master. It gives the Roman letters, and is found by actual demonstration to be *practicable.*

The engraving above correctly represents the exterior of this telegraph. It will be seen that letters are in one circle on the dial, and figures in the other; also, that on the base at the right of the dial, there is a lever, or key, designed for the finger of the operator. The hand or index revolves over the dial always to the right. To set the index when out of place, move by hand till it points to the blank or starting point or dial; now if the key is raised, the index on each telegraph will point to A, and remain there till the key is depress, when each index will point to B, etc.

This telegraph has been put in operation on the Boston and Providence Railroad. An instrument may be seen in the superitendent's office in Boston, and the other in the railroad company's machine shop in Roxbury, where it is operated generally by the workmen.

It may be used in all places where the electric telegraph is practicable. It is particularly adapted to railroads, police, fire-alarm, and marine purposes, and to places where it is not desirable to employ operators. The following are full directions for working Davis' "Letter-Indicating" or "Railroad" Telegraph:

The signal call is made by rapidly striking the key till index points to letter P. The "*go ahead*" answer to this is made by striking key till index points to $\underset{\cdot}{\text{——}}$ when the message may be immediately commenced. In case the signal call is not answered on first attempt, then in a short time actuate index an entire revolution till you again rest on P, continuing so to do from time to time till call is answered.

When "go ahead" signal has been received, depress and raise the key steadily and rapidly till index points to first letter of message, on which dwell an instant, then actuate index to next letter of message, and so on till it is finished. The time to be taken in pausing on letter message letter, need be only sufficient to fairly show that *that* letter is a part of message at the end of each word pause on $\underset{\cdot}{\text{——}}$ about as long as for letter; and at the end of sentence pause on $\underset{\cdot}{\text{——}}$ about twice as long as for word.

Whenever any part of message cannot be understood, instantly raise your key, the other operator will be at once aware of it, and must immediately raise his key. During the ten seconds that both keys must be kept up, each operator will move his index by hand to F^6, after which press key down, and each index will point to $\underset{\cdot}{\text{——}}$. Then repeat the message.

To each telegreph is is attached an alarm-bell, which is adjusted when the instrument is not in operation, and which is sprung by operating the telegraph till index points to letter P, that is, making the "SIGNAL CALL."

All, therefore, that is required to apply said invention to railroad purposes, is to place at each station on a railroad, in care of the depot-master, one of these machines and an alarm bell; and connect them with a wire from station to station in the ordinary manner; and also by placing one machine in each train of cars—passenger or freight train—in care of engineer or conductor; and one with each road-master, with a few feet of small copper wire.

In case an accident happens to any train on the road, (the disabled train being stopped,) the engineer or conductor in care of the machine will, by means of the copper wire, in a manner exceedingly simple and easily explained, put the machine in the circuit of the galvanic batteries which may be located in the respective depot stations.

By this invention an accurate and instantaneous communication from a disabled train, not only with the superintendent of the road in his office, but with every station-agent on the entire line, is attainable; and thus the danger of collisions and accidents on railroads, resulting from prior accidents, or from detentions of trains, or from derangement of any kind, is greatly lessened; and in case of an accident the detention to a train is greatly shortened, the derangement being immediately known, and assistance can be rendered in a short time.

Besides these advantages it affords a direct medium for the transaction of the general business of railroads, *and does not increase the expense*, as the depot-masters, ticket-agents, engineers, conductors, brakemen, and the operatives generally on railroads, are competent operators.

In the transaction of railroad business, where the routine of *questions* and *answers* is often repeated, words may not generally be spelled at length, but a code of phrases may be adopted, (*increased to any length*,) and thus by indicating a *single letter* or a *number*, a whole sentence may be transmitted. The code may be prominently engraved on the blank under the circle of letters on the dial plate, or written on a small card, and accompany the instrument. A few examples will suffice for illustration:

CODE OF SET PHRASES.

A signifies engine off the track at or near — — — —
B " tender off the track at or near — — — —
C " train off the track at or near — — — —

SIGNAL LETTERS TO INDICATE STATIONS.

C. N. Canton Station.
M. N. Mansfield "
E. J. East Junction Station.

Suppose it be required to communicate by the code from the point of disaster that an engine is off the track at or near some place noted in the code—say Canton station.

The engineer or conductor will take from the car the telegraphic instrument and connect it with the wire along the track (the air line) by means of the small copper wire,* and make the regular call—that is, actuate the index to the letter P on the dial. This will spring the alarm bells in the respective depot stations, and also in the office of the superintendent of the road. When answered he will pause the index on C D E to call attention to the code. Then he will pause on A, on C, and on N, as explained in directions for working this telegraph, after "go ahead" signal has been received.

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* When the wire is hung on the poles for railroad purposes, it may be brought down on one side of each pole, (or any pole where it would be desirable to connect the instrument, etc.,) to within *five* feet of the ground—cross the pole at right angles—and be carried up on the opposite side. By separating the wire where it crosses the pole, etc., the circuit may be opened and the machine connected, or the circuit may be formed through the instrument by throwing a small copper wire over the *air line* and connecting the opposite pole of the battery with the ground.

From the code will be read opposite A, "engine off the track at or near" and opposite C N will be found "Canton Station."

Thus the information, viz., "engine off the track at or near Canton Station," may be communicated by dwelling the index on A C N. Any sentence, phrase, question or answer may be thus instantly transmitted or received if desirable to transmit or receive words faster than they can be spelled by abbreviation.

The advantages of this telegraph over others for railroad purposes, are, *its simplicity*, *accuracy*, and *durability*; it never runs down or requires winding; it never operated by any local power other than the power of the electro-magnet; its compactness; it may be used at any point on a railroad; gives the Roman letters, and can be operated "without previous study" by the operatives on railroads.

Rubber Pencil-Cases.—Walking-canes and hair-combs made of caoutchoue have become quite common in our communities for purposes of utility and ornament. Mr. A. G. Day, the President of a Rubber Company in Semour, Ct., has successfully applied caoutchoue to a beautiful, durable, and convenient pencil-case. When sent out from the factory some cases are made entirely of rubber, and others are made having the point holding the lead and the part holding the point constructed of metel. The pencil made of rubber in all its parts, point, handle, etc., is called by railroad employés the "propeller pencil," and has become a general favorite. The pencil with a metallic point is also furnished with an arrangement for a pen, which can be drawn up within the case, so as to protect it against all accidents in carrying it about the person.

One marked feature of this pencil is that instead of becoming tarnished the friction of use makes it appear more brilliant and ebony-like. It has also the durability of gold; it is unaffected by climate, by heat or cold, by water or perspiration.

The rubber is polished by a process new and peculiar, for which measures have been taken to secure a patent. The rubber pencil is a vast improvement over most cases made of metal, and it is no wonder that it is finding a market in every quarter of the globe.

The Use of Certain Portions of Fish in the Manufacture of Soap.—This invention of improvements in the application of a new material to the manufacture of soap refers to the combination of a certain substance with the usual alkalies employed. In the manufacture of soft-soap, the patentee says: "I take any part or parts of any kind of fish or blubber; I first boil the fish or blubber and then let it settle; I then take all except the heavy deposit at bottom, which is to be thrown away or considered refuse, then strain it through a coarse cloth or sieve, put that which is left in a cloth or sieve into a press, and press all the loose matter out; the press must be lined with fine cloth. That which is left in the press is to be put in a boiler with one-fourth of tallow, and the whole is to be boiled with the usual alkalies for seven hours; it is then finished. This soap has the advantage of being without smell. The oil pressed out may be converted also in soft-soap, or used to burn in lamps, and gives a most brilliant light.

"To manufacture hard soap of fish or blubber, as aforesaid, the fish or blubber is to be boiled until they become a pulp; then put the pulp in a large tub to the extent of two-thirds, so as to leave plenty of room for stirring; when at blood heat, add to every hundred-weight of pulp one pound of bichrom of potash. The bichrom of potash must first be dissolved in an iron vessel over a fire. To every pound of the bichrom add one pound of water; when melted, to be thrown into the material in the tub. Immediately after, add one pound and a half of muriatic acid, and one pound of sulphuric acid into the tub; and the whole is to be then stirred or agitated sharply for one hour at least, and longer if not cooled below blood heat. If the composition is not made free or open by the before-mentioned acids, add as much fishery salt as is sufficient to set the material free or open. After the composition or material has stood twenty-four hours, the same is to be taken out of the tub, except the thick and dirty part which has become a deposit therein and which may be thrown away. That part of the composition or material which is clean is prepared for boiling in the usual way that soap is made; the only difference from the usual way of making soap with these materials is that it takes longer boiling, and which experience will teach."

IMPROVED COMPOSITION APPLICABLE TO SHIPS' BOTTOMS, ETC.—This invention consists in the application and use of a composition or mixture, formed of white lead, red lead, litharge, japanners' gold size, boiled linseed oil, and turpentine, for the purpose of protecting ships' bottoms, and other surfaces which may be coated or covered therewith, from the action of the atmosphere and sea-water, and to prevent the adhesion of animal or vegetable matter thereto.

The following are the proportions preferred by the patentees: One hundred and twelve pounds weight of dry white lead of commerce; eight pounds weight of dry red lead of commerce; six pounds weight of the litharge of commerce; three gallons of japanners' gold size; one gallon of boiled linseed oil; and half a gallon of spirits of turpentine.

These matters, when well mixed together, are applied with a trowel to the surface to be covered. If preferred, this composition can be made more fluid by adding larger portions of the boiled linseed oil and the spirits of turpentine, so that it may be applied to the surface to be covered therewith, by the aid of a brush, as common oil paint is now applied.

The patentees claim the forming and use of an improved composition, composed of the materials or ingredients hereinbefore described, for the coating of ships' bottoms and other purposes.

IMPROVEMENT IN MACHINERY FOR CUTTING METALS.—This invention consists in employing a boss or bush, to the interior of which is fastened the tube or other article to be cut by means of wedges or screws. The tube with the bush is then held fast by a vice or other suitable means. The boss or bush forms an axis around or upon which is fitted so as to turn freely but without shake, a frame or casting, with projecting arms, levers, or other mechanical contrivance in order to obtain power, having adapted to it a slide and tool-holder, in which the tool or cutter is placed. The slide and cutter are acted upon by a screw to which is fixed a toothed wheel, operated upon by a pinion, having on its shaft a ratchet-wheel. These wheels are connected to the frame or casting and move with it, when turned, by means of the levers, arms, or other contrivance. Upon the boss or bush is fixed a pin or projection, so placed as to come in contact with the ratchet-wheel; thus giving it and the pinion a slight rotary motion at each revolution of the frame or casting; the pinion transmits its motion to the toothed wheel, which causes the screw to turn and press forward the cutter steadily and uniformly; thus forcing itself into the tube or other article to be cut until it is severed, without any effort or stoppage on the part of the attendant.

IMPROVEMENT IN PRODUCING RAISED FIGURES UPON THE SURFACES OF METALLIC ARTICLES, POTTERY, GLASS, ETC.—This invention consists of a mode of producing raised figures or ornaments upon the surfaces of various articles of manufacture made of metal, pottery, or earthenware, glass, papier-maché, or other material, upon or to which such raised figures or ornaments can be fixed or attached. The figures or devices intended to ornament any such article of manufacture are engraved in metal, wood, or other material; the cutting being much deeper than is used in performing plate engraving generally—the object being to form a mould for reproducing the required devices. The engraved device is filled with a pasty composition (either colored or not) and a layer of paper or cloth is caused by pressure to take the cast of the engraved plate or mould. The paste or composition for forming the raised ornaments may be made by boiling with sulphur, red lead, and resin, until the mixture is brought into a glutinous state, and afterwards adding the requisite quantity of the earthy or other material of which the ornaments are intended to be formed. The whole is then ground or compounded together until the materials form a homogeneous plastic composition.

The raised impressions of figures or ornaments made or deposited upon paper or cloth are applied to the surface of the article to be ornamented by pressing the paper or cloth against it until the raised figures or devices adhere to the surface; after which the paper or cloth may be removed by washing or by fire. The principal articles designed to be ornamented in this way are such as are usually made of china, Parian, earthenware, stoneware, burnt or unburnt clay, glass, hardware, papier-maché, or other materials which are usually submitted to the action of fire or heat, or capable of being submitted to the action of heat, which is used when necessary for the purpose of fixing the figures or ornaments above mentioned.

IMPROVEMENTS IN THE COMPOSITION OF COLORS FOR PRINTING AND DYEING.—This invention relates to the preparation and application of fast colors for printing and dyeing purposes, and consists in the application and use (if a black color is wanted) of acetate of iron, weakened down or diluted to four degrees of strength (Beaumé) and used in the manner hereinafter described, and in the following proportions, namely—equal quantities of dilute acetate of iron and decoction of logwood of ten degrees of strength. Both these ingredients must be mixed together in a cold state, and then placed on a slow fire for about a quarter of an hour. After the mixture has been heated and whilst still in a heated state, "I add to it," says the patentee, "one part of the brightening mixture No. 1, which is composed of equal weights of nitric acid and proto-chloride, or salts of tin—the latter being dissolved in the nitric acid whilst the acid is in a cold state; and one part of the brightening mixture No. 2 is also added, composed of equal weights of muriatic acid and proto-chloride, or salts of tin—the latter being dissolved in the muriatic acid. To every thirty parts of the entire mixture I add a few drops of nitrate of copper. For the production of a violet fast color I employ equal portions of acetate of iron of two degrees of strength, and of decoction or extract of logwood, or any other red dye-wood of ten degrees of strength mixed together and placed on a slow fire for about a quarter of an hour. I then add to twenty parts of this mixture, while in a warm state, one part of the brightening mixture No. 1, hereinbefore described, one part of the brightening mixture No. 2, also hereinbefore described, and one-half part of nitrate of copper. When a redder hue is desired, cochineal may be added to the decoction—the whole being heated over a slow fire for about an hour. For the production of a red tint I propose to macerate two pounds of good madder wood and two pounds of cochineal for about twelve hours in one quart of acetic acid, and to this I add two pounds of muriate of tin—the whole being placed in a warm bath and subjected to the action of a slow fire for about twelve hours. The muriate of tin extracts all the coloring matter from the madder and cochineal and produces a deep red. These colors need only be thickened with gum, starch, or other suitable thickening material to render them fit for application upon a white ground—the colors being allowed to dry in the open air after such application. When dry the fabrics are to be washed in cold water and then passed through a brightening mixture composed of one hundred parts of water and one part of the brightening mixture No. 2 hereinbefore described. In order to dye the fabrics a uniform tint or color it is merely necessary to steep them in any of the colors hereinbefore described.

"The black which I have hereinbefore referred to is generally employed for printing the outlines of the pattern or design. These fast colors are applicable to the printing or dyeing of all descriptions of fabrics. Tints of violet, from the deepest violet to the most delicate lilac, are obtainable by adding more or less thickening material.

Improved Mode of Obtaining Alcohol.—This invention consists in the discovery that the saccharine principle contained in dogs-grass constitutes matter for obtaining alcohol by distillation, and by the means ordinarily employed in the manufacture of alcohol. "I take (says the patentee) about six pounds of fresh dogs-grass, which will give one pint and three quarters of alcohol, from 17° to 20° Cartier. This alcohol has an empyreumatic taste, which, however, may be easily removed by means of disinfectants, such as lime, charcoal, and carbon. The dogs-grass is first dried and afterwards reduced to powder; and in order to bruise it, I add a small quantity of cane which also causes fermentation."

Improvements in the Manufacture of Ornamental Fabrics for Decorating Walls, etc.—This invention of improvements in the manufacture of ornamental fabrics for decorating walls or other surfaces, consists in the application of certain substances as substitutes for woollen and cotton flock ordinarily employed in the manufacture of fabrics, having surfaces somewhat resembling that class of paper-hangings known as flock papers. The substances to be employed for the purpose of producing the flock or velvet, or other ornamental appearance, are the following, viz:—First, pulverized freestone; second, metallic powders; third, sawdust produced from any kind of colored wood, also pulverized bark and tan, and whalebone reduced to powder or small particles; fourth, powdered paper of various shades and colors; fifth, textile plants of various kinds, such as the plant known as oriental or vegetable silk, hemp, and other similar vegetable matters.

These various substances are to be applied in the state of powder to the paper, after the manner ordinarily employed for the manufacture of flock paper. When color is required to be imparted to them, this may be done by staining them either before or after pulverization; or the color may be imparted to them after they have been applied to the paper.

It is well known that, for the manufacture of paper-hangings, known in commerce as velvet-faced or flocked papers, it has long been the custom to employ dyed wool of various colors reduced to powder, which material is dusted over the surface of the paper, previously prepared with flocking varnish—the object being to impart to the paper an ornamental pattern, the surface of which will somewhat resemble velvet. This process is, however, very expensive, by reason of the various manipulations which it is necessary for the wool to undergo before applying it to the paper to produce the flock surface. By these improvements the same object is attained at a much less expense, and, moreover, effects of much greater variety than it was possible to produce by the ordinary plan are obtained. The pulverized freestone may be colored either by previous immersion in a bath of coloring matter, or by printing upon it after it has been applied to the paper. The pulverized metallic powders employed are obtained either by simply pulverizing metals, or ores of metals, or by reducing chemical compounds, such as metallic salts to powder. The sawdust is obtained from various kinds of wood, either dyed or undyed; or from oak-bark or tan, which are to be reduced to powder by rasping or trituration; or from wood-cuttings or shavings, stained either before or after being reduced to powder or fine filaments. Paper of various colors may be reduced to powder by rasping or grinding, or any other mechanical means by which powder of any required degree of fineness may be produced.

It is also proposed to use such metallic or other ores as contain mica or talc for the production of ornamental designs upon paper, as these substances, by their color and luster, strongly resemble gold or copper powder. These materials might be employed either alone or mixed with plain or colored sand, or with any of the other substances employed for the production of the flock surface.

Hemp and some other textile materials are also applicable for the purposes of this invention when reduced to powder, by which means the refuse of spinning is rendered useful, which is now nearly worthless.

Other vegetable matters, such as bran, straw, mosses, marine plants, lichens, and tan, reduced to powder, will also produce a very fine flock surface.

For some purposes, baked earths of various kinds and colors, when pulverized, may be employed either alone or in combination, and will produce very superior flock surfaces.

The following is the method found by experience to be the most advantageous when employing wood for the purpose of carrying out this invention: The wood is first to be reduced to shavings or cuttings by a plane or any suitable apparatus; these shavings are then to be dyed or stained, of any desired color, and finally reduced to powder by means of tan-stampers, or by a tan grinding-mill. Or, instead of operating as above mentioned, the wood-dust is produced in the following manner:—The wood is first reduced to shavings, which is pulverized by any suitable apparatus, in order to produce a powder, or small fibrous fragments, of greater or less length; and, lastly, the product is dyed or stained of any required color. It is evident that this wood powder may be obtained from any kind of wood or ligneous matter. The powder of wood or other substance, must be sifted or screened before being employed, in order to insure a uniform degree of fineness.

When ligneous matters other than wood are to be employed, it will not be necessary, in many cases, to reduce them previously to cuttings or shavings, and in this case they are to be reduced to powder (denominated "woolly powder,") either by means of stampers or other mechanical means.

An Improved Metre for Water, etc.—This improved metre for water and other liquids consists of a wheel formed with chambers or buckets in the periphery communicating with the axis of the wheel, which is hollow, and from thence with an air-tight reservoir, filled with air by means of an air-pump, to any required pressure; or the center of the wheel itself may form the reservoir, and be filled to the required pressure. The wheel revolves in a case made to fit as closely as is consistent with the free movement of the wheel. The water or other liquid passes from a feed-pipe to the wheel, and from the wheel to the exit-pipe through openings in the case. The chambers or buckets in the periphery of the wheel are fitted with pistons, which will be driven towards the axis when the pressure of water or other liquid from the feed-pipe is on them, and the chambers or buckets will be filled. When the exit-pipe is open and a bucket is opposite to it, the piston at the back of that bucket will be driven towards the periphery by the pressure of air in the reservoir, and caused to empty the bucket.

Improvement in Weaving Elastic Fabrics.—This invention consists in throwing two or more colored threads, or threads of different materials, in the weft to the surface at will. This object the patentee obtains in various ways; as, for example, by working the shaft or beam holding the elastic threads in such a manner as to throw either of the colors in the shuttles to the surface at pleasure, or by so working the battens as to produce the same effect. The usual way of working the shaft holding the elastic threads is to lift it up, pass one of the shuttles through the warp, next drive it down, then pass another shuttle through the warp, and so on. When the invention is carried into effect by working the elastic web-shaft, the shaft is acted upon by means of wheels, or otherwise, in such manner that it may be held still whenever it is desired to change the color or material of the surface, until two or more shuttles have been passed separately through the warp; by which means either of the colors or materials in the weft are brought to the surface at pleasure; and thus plaids and other fancy patterns may be produced without changing the motion or altering the position of the shuttles. In practice, however, in order to produce a great variety of pattern and color, the patentee prefers to adapt the machines for weaving elastic fabrics the Jacquard system. The India-rubber or elastic threads are the only threads that are connected to the lifting wires of the cards; and, according to the pattern pierced upon these cards, the proper number of elastic threads is lifted or brought to the surface, and the weft is thrown above, or below, or between these elastic threads, in accordance with the design to be produced. By using several tiers of shuttles, each tier carrying threads of a different material or color, a great variety of pattern may be produced by alternately bringing the different shuttles even with the sheds, and, at the same time, by means of the pattern on the cards, so shifting the position and number of elastic threads as to bring the required color or material to the surface. Simple patterns, such as checks, or plaids, or stripes, may be produced independently of the Jacquard arrangement, and in the ordinary looms for weaving elastic webs, where two or more tiers of shuttles are used, by so working the shaft or beam holding the elastic threads that at every change of color or material the shaft is held stationary while the shuttles are thrown twice. The shaft carrying the elastic thread is then worked up and down together with the throwing of the shuttles, until the required length of pattern is produced; the shaft carrying the elastic thread is next held still, and the shuttle again thrown twice, which thereby brings the next required color or material to the surface. The shaft of the elastic thread is then worked in this position until the required number of this surface color or material has been thrown, when the shaft is again shifted, and both tiers of shuttles, if two tiers are being used, thrown twice, which brings the next colored weft to the surface; and this color is then worked the required number of shoots, and the elastic thread shaft is again shifted, and the throw of the shuttles again continued. Instead of the above method of acting upon the elastic threads, the battens may be worked up or down in such manner as to bring the tier of shuttles carrying the required surface color or material of weft, even with the work; so that when the shuttles are thrown, the desired color or material is brought to the surface. At every change of color or material to be thrown by the shuttles, the battens must remain up or down while either of the tiers of shuttles are thrown twice, or any other even number of times.

IMMENSE RAILROAD BAR.—A triumph of manufacturing skill and ingenuity has been achieved at the Tredegar Iron Works, Monmouthshire, showing what may be done in the manipulation of iron. A railway bar was rolled 60 feet in length, all in one piece; and advancing from this success, a second bar has been rolled 85 feet 2 inches long, 75 lbs. to the yard, weighing altogether 2,130 pounds. It is now astonishing visitors to the Exhibition at Paris. No wonder, when such bars as these are produced, that we hear of fly-wheels 60 tons to regulate the movement of the rollers.

NEW LIQUID FOR PREVENTING SEA-SICKNESS.—This invention consists in the composition of a liquid for preventing or alleviating sea-sickness. For this purpose the inventor distils one-third of an ounce (troy) of hydrocloric acid in five ounces of alcohol, mixes the product in thirty-two or thirty-eight ounces of water, and then sweetens the liquid with syrup of sugar. By preference, however, he composes the liquid of two and two-thirds of an ounce (troy) of dry chloride of lime mixed with eight ounces of water, to which ten and two-thirds of an ounce of alcohol are added. The whole is distilled by ordinary means, until five ounces and one-third of the liquid are obtained as a product. He next mixes this product in a stone or glass beaker with thirty-two or thirty-eight ounces of water, and sweetens it with syrup of sugar; and adds to one or the other of these liquors a few drops of essence of mint or bitter almonds, giving it a rose-colored tint by a weak solution of cochineal. One or two table-spoonfuls of the liquor, thus prepared, should be taken prior to going on board, when it will in most cases prevent sea-sickness; if taken during the retching, it will greatly reduce its violence and the pain arising from the sickness.

PORTABLE HAY AND COTTON PRESS.

Among the various means used in pressing hay and cotton, one that has recently attracted our notice commends itself very highly to our judgment. It is the invention of Mr. Pells Manny, Wadam's Grove, Ill. It consists of a large box, mounted on wheels, so as to be portable, the contents of the box, whether hay or cotton, being powerfully compressed with a pair of levers, acting in harmony. It is not liable to get out of order, and can perform the service required of it in the field in which the crop grows as well as elsewhere, and thereby saves often the time and cost of handling it. The following description, in connection with the engravings, will explain the press and its operation.

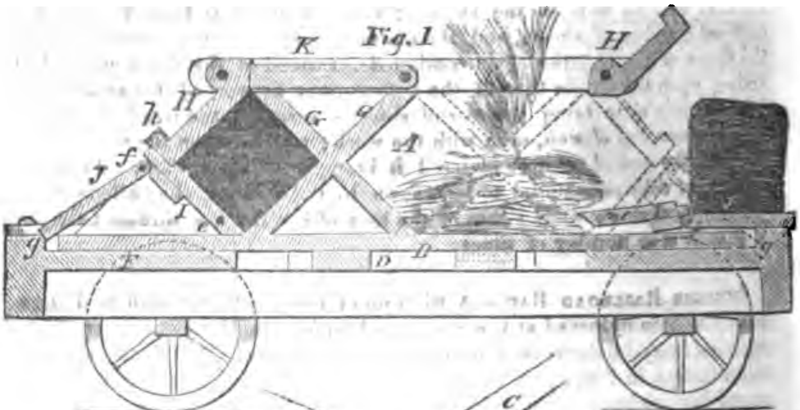
Fig. 1

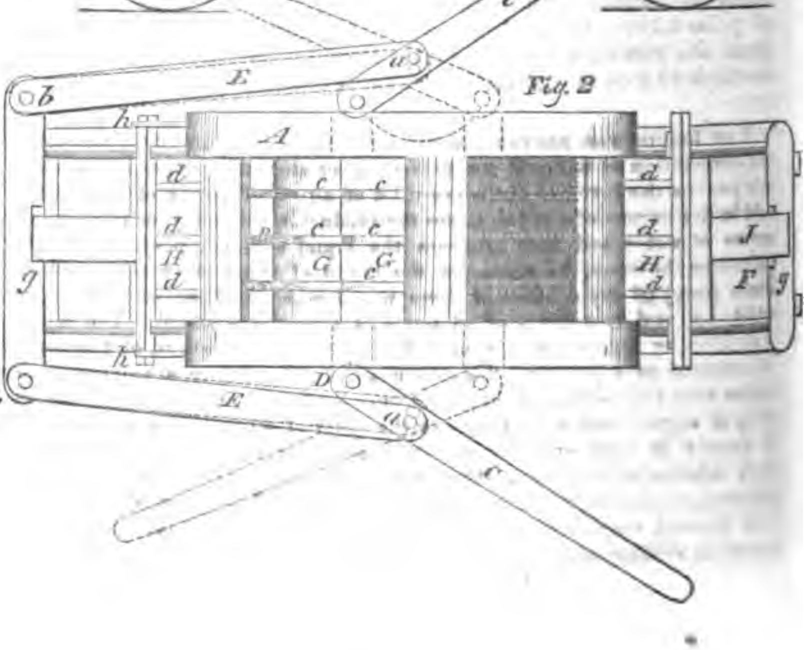
Fig. 2

Fig. 1 is a side view of this press. Fig. 2 is a vertical longitudinal section of the same, the plane of section being through the center. Fig. 3 is a plan or top view.

A represents a rectangular box or case, having a sliding bottom B, to each side of which, at its center, a lever C is attached by a pivot. The levers are attached to the ends of a cross piece D, which is secured to the under side of the bottom B. The fulcra of the levers C are at the ends of levers or arms E E, as shown at A, figs. 1 and 3, and the levers or arms E E are secured by pivots, B, at one end of the base or platform F, on which the box or case A is secured.

To the upper surface of the center of the sliding-bottom B there are secured two followers G G, which are so inclined as to cross or intersect each other at right angles, (see fig. 2.) These followers correspond in width to the interior of the box or case A, as shown in fig. 3. The upper parts of the followers above the points of intersection have longitudinal slots or recesses (*c*) cut in them as shown in fig. 3.

To each end of the box or case A, and at its upper part, there is attached a door H, which is so arranged as to be allowed to spring up and down, the upper cross-pieces of the doors having their ends fitted in the top and side pieces of the box or case, so as to turn therein. The doors, H, have slots or recesses, *a*, cut through them, as shown in fig. 3.

The ends of the sides of the box or case A are not vertical, but inclined so that when the doors H H are closed or down, they will also be inclined at an angle of 45°, corresponding with the inclination of the followers. The doors, H H, when closed, cover only about one-half the ends of the box A, and are secured to it by pivots *e*, (see fig. 2,) which pass through the sides of the box and into the sides of the doors. The doors, I I, when close, are also inclined, but in a reverse position to the doors H H, (fig. 2.) The upper ends of the doors I rest or bear against the lower ends of the doors H; and the doors I, are secured in a closed state by bars J, one end of which is secured by pivots *f* to the upper ends of the doors I, while the opposite ends fit in notches or recesses G, in the ends of the base or platform F, fig. 2. The upper doors, H H, are secured in a closed state by hooks, *h*, which catch over the lower cross-pieces of the doors, as shown in fig. 2.

A lid, K, is attached to the upper part of the box, and near its center.

The operation of the press will be readily understood. At the commencement of the process, the doors H and I, at each end of the box, are closed, and the hay to be pressed is placed in the box, at one side of the lid K, and the lid is then closed over the hay. Power is then applied to the levers C, and the sliding bottom B is moved, as well as the followers G G, and the hay is compressed in a square bale between the doors H and I at one end of the box, and the followers G G. When the hay is compressed, the doors H and I are opened and the bale withdrawn. The slots *c* and *a* afford facilities for hooping the bale; while this is going on, hay is placed in at the other end, with which the same process is to be carried on.

By the use of this press much time is saved, preparations being made for the second bale while the first is yet in the press. And again, such is the arrangement of the followers as to require just the required motion, without any loss of time in replacing them. And again, the pressure is so distributed among the doors and followers as not to overstrain any single part of the machinery.

Miscellaneous.

THE ERIE RAILROAD.

We have repeatedly referred to this road as abounding in splendid scenery and interesting historical associations. Even where the general view is uninviting, a single point possesses great attractions. For example; about 10½ miles from Piermont, in an uncultivated neighborhood, is a brown stone gothic cottage, two stories high, of elaborate design, and finished in excellent taste, built by Mr. Thom, the self-taught sculptor of the famous and wonderfully life-like group "Tam O'Shanter and Souter Johnnie." The garden contains a full-sized statue of Washington, by the same hand. Such associations as these are not of small account, but ought to be cherished and strengthened and multiplied.

Passing Suffern's Station, 32 miles from New-York, we enter upon grounds rich in revolutionary associations. Washington and his army were encamped here in 1780, and it was here that many of his letters, since published, were written. Expecting an attack from the enemy, he took up a position a mile and a half beyond Suffern's Station, at a place where "the pass" is only a quarter of a mile wide. Some of the old intrenchments are still visible on the eastern side of the road. Washington's head-quarters were at a farm-house, with a "gambrel roof," half a mile eastward from Suffern's, and north of the road.

Two miles further on we come to the Ramapo Iron Works, the first place in the country where cut nails were made. A file factory and a cotton mill have also been erected. Sloatsburg, near by, contains two cotton factories. Cotton twine is manufactured there and to a large amount. It is the invention of the proprietor, Mr. Jacob Sloat. Twelve miles from Sloatsburg is Greenwood Lake, to which a stage runs. This is a beautiful sheet of water, eight miles long, the favorite resort of anglers. A good hotel furnishes accommodations to visitors.

The Augusta Iron Works are passed soon after, at which was forged the chain placed across the Hudson at West Point to check the progress of the English fleet.

The Munroe Iron Works are also near, 42 miles from New-York. The ore wrought there, which is found at a distance of about six miles, is pronounced superior for cannon.

Turner's, 47 miles from New York, is the last stopping-place ere you enter that region so famous for the products of the dairy, Orange County.

Monroe, two and a half miles further on, is remarkable as a milk depot; 200 cans of milk are sent from this station to New-York every day; each can averaging about 15 gallons. Some of the farmers keep 80 or 90 cows. The freight is half a cent a quart.

Goshen, 59½ miles from New-York, the one-half shire of the county, is the most famous depot of milk and butter on the road. It is a thriving place. During the Revolution a portrait of George III., occupied a place over the court-house entrance, but on the arrival of the news of the "Lexington fight," it was torn down. This is also the scene of a most bloody battle with the Indians, led by the famous John Brandt.

Would travelers study these matters a little, they would greatly increase their pleasure in traveling, and deprive many rude and uninviting scenes of the tedium which they often excite.

The Manufacture of Watches—A watch is no longer, as it was formerly, an object of luxury, destined exclusively for the rich; it has become an article of the first necessity for every class in society, and as, together with the increased perfection of this article, its value has in the same time considerably diminished, it is evident that a common watch, which will exactly indicate the time of the day, is actually, by its low price, within the reach of almost every individual, who will likewise feel anxious to possess one.

For this reason, and in proportion as commercial and maritime relations are extended and emancipated from the trammels in which the great central marts of commerce have involved them, so will distant nations become civilized; and it may be fairly anticipated that the art of watch-making will form part of the great current of improvement.

The number of watches manufactured annually in Neufchatel may be calculated from 100,000 to 120,000, of which about 35,000 are in gold, and the rest in silver.

Now supposing the first on an average to be worth $30, and the others $4, it would represent a capital of $1,390,000, without taking into consideration the sale of clocks and instruments for watch-making, the amount of which is very large.

The U. S. of America consume the largest quantity of those watches. With the exception of gold and silver for the manufacture of the watch-cases, the other materials for the construction of the works or mechanism of the Neufchatel watches are of little value, consisting merely of a little brass or steel. The steel is imported from England, and is reckoned the best that can be procured; the brass is furnished by France.

With respect to gold and silver the inhabitants of Neufchatel have had for a long time no other resource but to melt current money, until they received gold from England, which the English merchants receive from California.

The number of workmen who are employed in watch-making is estimated at from 18,000 to 20,000, but it is difficult to arrive at the exact number, as the population employed carry on the business in their own houses.

The spirit of adventure is very strong among the inhabitants of the Jura Mountains. A great many of them have traveled into very remote countries, whence some have returned with considerable fortunes.—*Merchant's Magazine.*

National Book Establishment in Austria.—In the Austrian Department of the French Exposition, there is a most remarkable exhibition. The *Staatsdruckern*, as it is called, is a vast manufactory for everything connected with book-making and engraving, and is under the imperial government, which carefully fosters it as the French Government fosters the Gobelin and Sevres. The collection of Paris comprises an immense number of interesting specimens, among which are imitations in chromo-lithography of some of the pictures of the old masters, so extraordinarily perfect, that it is difficult to know them from the original which hang by their sides. There are also wonderfully fine anatomical plates, maps of immense size, and elaborate workmanship. The annual expenses of the establishment are more than a million florins, and the receipts about 1,200,000 florins. The type stock comprises more than 600 sorts and degrees of native letters, and 120 alphabets of foreign languages. The whole stock weighs 450,000 pounds, which, reckoning 50,000 letters to the 100 pounds, gives 225,000,000 as the total number of letters. The quantity of paper annually used in the establishment is over 200,000 reams, and the number of persons employed is nearly eight hundred.

PROFIT OF RAISING SWEET POTATOES.—Two agriculturists of Alton, Ill., engaged in the cultivation of sweet potatoes, publish an account of their profits during the past season. They planted twelve acres of potatoes, the expenses of which, delivered in market, were $187 50. The total amount of sales were $2,200; leaving $2,012 50 for net profits. This gives an average profit of $167.70 per acre.

LEMONS.—It is strange that no one has entered into the production of this fruit upon the coast of Texas as a regular business. The production of lemons alone would be a profitable employment. There is no danger of glutting the market, however large the product may prove. Last year there were imported into Boston, from the Mediterranean alone, 46,000 boxes of lemons and 47,000 boxes of oranges. These are but insignificant items in the total imports of the United States during that time. Upwards of thirty dollars worth of lemons have been sold in a single season from a young tree in Galveston. No trouble but that of planting is requisite.—*Civilian and Gazette.*

HATS! HATS!—At the New Hat Company's store, 146 and 148 Nassau street, we find Mole-skin hats of excellent quality for $3, and Drab Beavers at the same price. Our country friends will always find their hats of one price, as well as near the same quality as can be made. All the varieties of soft hats and fancy caps are to be had there, and at low rates.

THE VALUE OF THE GRASS CROP.—Governor Wright, of Indiana, in his recent address before the New-York State Agricultural Society, says our grass crop is not properly appreciated. No crop, he says, approaches so near a spontaneous yield, and none yields so large a profit. The hay crop of the United States in 1850 was over 13,000,000 tons; that for 1855 he estimates at 15,000,000, which was worth $150,000,000, while the whole cotton crop is valued at only $128,000,000. Of this crop more than half is produced by the four States, New-York, (which yields one-fourth of the whole,) Ohio, Indiana, and Illinois. The grass crop which is used for pasturage, is at least as valuable; so that this single herb is worth annually over three hundred millions of dollars. Few people will believe that the grass crop of this State is worth more than its wheat, and yet statistics show that such is the case.

AN ACCOMPLISHED BLIND MAN.—The *Journal de Chartres* gives an account of a water-mill, in the hamlet of Olsieme, near Chartres, built entirely by a blind man without either assistance or advice from any one. The masonry, carpenter's work, roofing, stairs, paddle-wheel, cogs, in a word, all the machinery pertaining to the mill, has been made, put up, and set in motion by him alone. He has, also, the above journal asserts, made his own furniture. When the water is low and the mill does not work, our blind miller becomes a joiner, and also a turner, on a lathe of his own invention, and so he makes all manner of utensils, and pretty toy windmills for the juveniles. He lives quite alone, sweeps his own room, and cooks his own dinner; his mother, who has 15 children to care for, lives a mile off, and does not trouble her head about "her blind boy," for "he earns his bread now," she says, "and does not want her." In 1852 this blind miller was rewarded with a medal by the agricultural society of the arrondissement, for a machine serving the double purpose of winnowing corn and separating the best grains from the common sort.

ALUMINUM, THE NEW METAL FROM CLAY OR BRICK.—A large bar of this new metal, presented by the Emperor of the French, is now on exhibition at the Polytechnic Institution, London. This rare gift evokes the admiration of all who see it, not only on account of the external silvery appearance, but also from its extreme lightness, toughness, malleability, and durability, difficult fusibility and absolute indifference to that tarnisher or destroyer of metals, oxygen, a stern resistance to the action of water, and a chemical contempt for that bane of large cities, sulphuretted hydrogen. Aluminum, it is reasonable to expect, will form all our culinary vessels; no more copper or brass pans to poison our acid sauces, pickles, condiments and confectionery. —*London paper, Sept.* 8.

THE CAMEL EXPEDITION.—The Washington *Star* has some particulars of the progress of the expedition to the Levant in search of camels to be used on the western deserts between the Atlantic and Pacific oceans. The U. S. store-ship Supply was at Tunis on the 4th of Aug. Major Wayne, the Chief of the expedition and the officers of the ship were presented to the Bey of Tunis, who, on hearing of the object of the expedition, immediately sent them a present of two fine camels. They were gratefully accepted in the name of the President of the U. S. The supply left for Malta on the 10th of Aug., courteously taking as passengers the widow and daughter of Sir Edward S. Baynes, late English Consul General. The Supply also took on board a beautiful block of marble from the Ruins of Carthage, for the Washington Monument, presented by Mr. David P. Heap, son of our late Consul. The block is of variegated—red and white—marble, and was cut from one of the columns of the temple of Esculapius.

GOLD IN VERMONT.—A friend who has recently visited the gold diggings in Plymouth thus writes:

"Yesterday I visited the gold diggings in Plymouth, and was in season to see one man gather up the value of $5 from only half a day's labor! But this seemed to be but an extra dose, as the general average is not far from $1 per day each. . . . . Mr. Hankerson showed me $15 of "dust," the proceeds of the last week. Notwithstanding the present good doings, I am quite fearful that it will be but a short time before nothing will be said or done at these diggings; the gold seems to be too deeply imbedded in the earth to make it profitable to search only in the small streams that wash from the surrounding hills. This proves to be the case in Bridgewater and all the "placers' on Quechee.—*Republican.*

WEAVING BY ELECTRICITY.—An invention that promises to create a revolution in the manufacture of silks, linens, cottons—in fact of all woven articles—has just been perfected here, and a specimen is now on its way to the Paris exhibition. This is the electric loom, invented by Cavaliere Bonelli, inspector of telegraphs in the Sardinian States. Some time since I noticed to you his application of electricity to the jacquard loom, whereby he was enabled to dispense with cards and much of the manipulation necessary for the old system of weaving; but in the more perfected specimen now about to be exhibited, the inventor has added steam power to supersede manual labor, so that one intelligent workman may attend to many machines at the same time, and the operation of making all kinds of patterns will be as easy, cheap and expeditious, as printing and knitting in different patterns is also performed with similar instruments.—*Turin correspondent of the Times.*

FAILURE OF NASMYTH'S MONSTER GUN.—We regret to learn that Mr. Nasmyth's wrought-iron gun has proved a complete failure, and this not on account of the mechanical difficulties which had to be encountered—formidable as they were—but from a most unexpected peculiarity in the material employed, when brought together in so large a mass as was necessary for Mr. Nasmyth's purpose. It seems that wrought iron, so tractable under all ordinary conditions of working, cannot be welded together in very large masses without undergoing a change in its molecular arrangement exceedingly injurious to its tenacity. As we understand the explanation which we have received on this point, an immense mass of iron like that which Mr. Nasmyth has welded together continues so long in an incandescent and soft state that a process analogous to crystalization takes place within its substance, whereby the fibrous texture, from which it derives its tenacity, is destroyed, and it becomes even less capable than cast iron of resisting the explosion of a heavy charge of gunpowder. We understand that, in addition to the unfavorable result obtained by Mr. Nasmyth at Patricroft, another experiment of a similar nature made under the direction of government has proved a complete failure from the peculiarity in the material to which we have alluded; a large gun which had been completed was found utterly unfit for use. Indeed, we believe it burst into many pieces on the first trial. Mr. Nasmyth's experiment has consequently been abandoned.—*Manchester Guardian.*

REMARKABLE PROPERTIES OF GUTTA PERCHA.—The following statements of experiments made upon gutta percha vestments at the United States naval laboratory will give additional value to preparations of that gum. The Washington *Star* says that, in consequence, the Navy Department has ordered a supply of such clothing to be distributed among the East Indies, African and Gulf squadrons. Fabrics of the same kind have been freely introduced in the military service: "Six pea-jackets, made of gutta percha fabric, were baled in the same manner as the cloth clothing for the navy, under a pressure of thirty tons. They were then placed over a steam boiler in the yard, and remained for sixteen days subject to an average temperature of 190 degrees, at times as high as 212 degrees. On examination the garments were found in the same state as when packed. There was no adhesion of the folds nor any decomposition of the gutta percha. One jacket was dipped in water, rolled up and sewed in the corners, (but not pressed) and subjected to the same heat for three days. On examination this also was found uninjured."

ANECDOTE OF A SHEEP.—Anecdotes of animals are always amusing; and moreover if observed accurately and told without embellishment, may some day serve to solve a great problem in philosophy—the distinction, namely, between the spirit of a man that goeth upward and the spirit of a beast that goeth downward to the earth—a problem that the great Bishop Butler could not solve, and left a blemish in his argument, but a monument to his candor. The subject of the one I am going to tell happened many years ago, when I was an urchin of eight or ten, but I remember it well.

One fine summer morning it was my province to aid in driving a flock of sheep to the brook, to be washed, preparatory to shearing. The man who had charge of them led the procession with the salt-dish in hand, in which he ostentatiously rattled some lumps of salt, and from time to time made pretense of throwing a handful on the ground, to draw the flock onward from place to place, while I followed to drive up the loiterers.

The old patriarch of the troop, a fine old buck, led the van of the quadrupeds, and carefully examined every spot where the false motion of throwing salt was made, till he was fully satisfied in his mind that no salt was deposited. He then paused, shook his head with its ample honors, and waiting till the shepherd was about a rod in advance, charged upon him from the rear with his whole momentum, fairly raising him off his feet. I saw, and from the first comprehended the manœuvre, but there was so much fun in it it was impossible to give the alarm; and when the man turned to " blow me up for my tacit complicity, I was rolling on the green sward in a convulsion of laughter so contagious he was forced to join in it, and let me off without a rebuke.

Will it do to attribute to so simple an animal as a sheep, so high a moral sentiment as indignation at deceit? Perhaps not; but we may at least make the "practical interference" that those having charge of flocks cannot securely lead them long with mere occasional handfuls of—wind.—*Church Journal.*

Process for Rendering Porous Substances Waterproof.—Leather, cloth, earthen ware, paper, etc., may be made waterproof by causing them to absorb gutta-percha, in the mode secured by this patent. The process is as follows:

Take one part by weight of dry gutta-percha cut up into small pieces, and add four parts of sulphuret of carbon. Keep this mixture at a temperature of about 77° Fahr., and agitate it at least six times in twenty-four hours. In two days the solution will be ready for use. The solution is placed in any suitable closed vessel, which will admit of being heated in a water bath, and of the evaporation and condensation of the sulphuret of carbon taking place. The goods to be waterproof are wet down in this vessel, and immersed in the solution; and the vessel is then placed in a water bath and heated for five hours, without, however, carrying the temperature to the boiling point. When the temperature of the bath has fallen to about 85° Fahr., the goods are removed and allowed to drain; they are then placed in another vessel, which is heated in a water bath, in order to evaporate and condense the remainder of the sulphuret of carbon. The goods are afterwards removed from this vessel and dried, and are submitted to pressure or not, according to their nature. If the substance to be saturated are too compact to absorb the solution by simple immersion, such, for instance, as blocks of wood, it is necessary to force it in by exhausting the air from the wood, and by prosure applied on the surface of the solution, as is done in the preservation of timber.

Physic to Colts at Weaning.—Many persons are of opinion that it is unnecessary to administer physic to foals and young horses; but a few observations will dispel that notion. After a foal has been weaned and deprived of its mother's milk, the liver very frequently assumes an inactive, sluggish disposition. The coat indicates this by its harsh unhealthy appearance, and the animal gives evidence of being what is termed hidebound.

Very often the legs will fill from an irregularity of the circulation, consequent upon the state of the liver. In such cases one or two mild doses of aloes becomes indispensable.

Coal of the Ohio Valley.—We learn by the Railroad Record, Cincinnati, that about 60,000,000 bushels of bituminous coal are raised and consumed in the Ohio Valley. The coal field of the Ohio Valley is the largest in the world; the coal surface amounting to 99,000 square miles. That of Great Britain only amounts to 12,000, and from it no less than 925,000,000 bushels are raised every year. It is the source of England's great wealth; without it her manufactures would be very insignificant. The Ohio Valley must be the great iron shop of the world some of these days.

A Century Plant Twenty-six feet High.—There is now to be seen at Savannah, Georgia, an aloe-tree, otherwise called a century plant, twenty-six feet high, and containing more than a thousand buds, all of which are ready to bloom. This remarkable tree is a native product of Wilmington island. Of its history the first fifty years of its existence, we are not informed. Since 1804, when it was transplanted upon the island, it has been thriving, the admiration of all, on the farm of Col. Hunter.

Blanketing Cows.—A correspondent of the *Rural Intelligencer* who has been traveling through Holland, says:

"Great care is taken of their cows, both in the winter and in the summer; and in a lowery wet day, you will see the cows in the field covered with blankets; ay, even more commonly than a horse is blanketed here in the winter. This care is well repaid by a greater flow of milk and a less consumption of forage."

Iron Boats for the Panama Bay.—The Morgan Iron Works have just completed the second iron lighter for the Panama Railroad Company. The dimensions are: length, 75 feet; beam, 20 feet; depth, 5 feet; and built expressly for light draft, great strength, and facility of transhipment. The first lighter of this class was shipped in sections by the schooner Pedee, on the 20th ult., for Aspinwall. From Aspinwall it will be transported by railway to Panama. Four other lighters are now under way, and will be sent out as soon as possible to meet the increasing freight on this great highway of nations. Mr. Watson, the Company's Engineer, goes by the George Law with a strong force of mechanics to erect these boats at the Company's Works on Panama Bay.

NEW BOOKS.

Outlines of Physical Geography. By Geo. W Fitch. Illustrated by six maps and numerous engravings. Second edition. New-York: J. H. Colton & Co. 1856.

This volume is intended for the use of schools, and claims to be the first published in this country. In this there must be a mistake. The capital treatise of Guyot cannot be thus ignored. For, though it is not intended exclusively for schools, it is perfectly adapted to our higher classes, and cannot easily be improved. But this volume is entirely different from that in structure, and is quite full in some points which Guyot scarcely touches; while in other points Guyot is more thorough. Mr. Fitch has brought together abundant materials from various sources, has well arranged and classified them, has given them an attractive form, with clear and well-drawn illustrations, and deserves high commendation. It is best adapted for scholars somewhat advanced; and, indeed, we doubt the propriety of placing any text-book on this subject in the hands of those not sufficiently trained to appreciate the value of the information to be acquired from it. This book is well bound, on good paper and type, and ought to satisfy even those who are very particular about such matters.

God Revealed in the Process of Creation, by the Manifestation of Jesus Christ, including an Examination of the Development Theory contained in the Vestiges of the Natural History of Creation. By James B. Walker, author of Philosophy of the Plan of Salvation. Boston: Gould & Lincoln. 1856. 273 pages.

The author has executed the task he undertook in a very thorough manner. The drift of the argument is to show the same unity of plan and design, running through all time, from the very beginning to the present. When the atmosphere was formed it was adapted to its present uses. When the world was in chaos elements essential to man's existence were formed, as seen in the coal beds, etc. Thus all the natural laws have uniformly resulted in promoting the accomplishment of the great end in view, the creation of man. The connecting links between this state of things, man's condition, and the New Testament, and the plan of salvation it sets forth, are ably exhibited. We heartily commend the work as skillful in its plan and able in its development and illustration.

The Christian Life, Social and Individual. By Peter Bayne, M.A. Boston: Gould & Lincoln. 1856. 528 papes, 12mo.

This work is written with great ability and possesses extraordinary interest. It illustrates the power of the Gospel upon the lives of persons not remarkable for power of intellect, as Howard, Wilberforce, and Samuel Budgett, as also upon the greatest minds, like John Foster, Thomas Erskine, and Dr. Chalmers. These admirably written and exceedingly entertaining biographies are followed by treatises upon the Positive Philosophy and Pantheistic Spiritualism. We commend this book as possessing the very highest claims and able to exert the strongest attractions for cultivated minds.

Battles of the Crimea, including a historical summary of the Russian war, from the commencement to the present time, giving a graphic picture of the great drama of war, its bloody encounters, thrilling incidents, hair breadth escapes, fierce enthusiasm, individual daring, personal anecdotes, etc., etc., embracing a new plan of Sevastopol, its fortifications, batteries, position of contending forces, siege works, etc., and a superb map of the seat of war. 10th edition. New York: O. F. Parsons, 140 Nassau street. 1855. 163 pages.

We have given this long title in full because it tells the whole story. The author has well done what he here sets forth, and we doubt not its reliability. The book sells very rapidly.

We have also on our table some new and excellent maps of the Crimea, Sevastopol, etc., published by Mr. O. F. Parsons. One sheet contains a map of the Crimea and the Sea of Azoff, on a large scale, with a smaller map of Europe. Another sheet presents a view of the late successful attack on the Malakoff and the Redan, with an Engineer's Typographical Range Map of Sevastopol, showing the position, direction, and extent of range of the guns, and all the important features of the place.

Voices from the Silent Land; or, Leaves of Consolation for the Afflicted. By Mrs. H. Dwight Williams. Boston: John P. Jewett & Co. 283 pp., 12mo.

These voices were "collected in the freshness of a very deep affliction," and are the products of some of our most gifted minds—as Hemans, Croly, Halleck, Montgomery, Howitt, Barton, Bryant, Longfellow, Payson, Thomas à Kempis, and many others, who, in poetry and prose, have given utterance to the language of, or counsel adapted to, a stricken heart. We need not add that its pages abound with beautiful passages, and expressions of deep religious feeling.

Lake Shore; or, The Slave, the Serf, and the Apprentice. By Emile Souvestre, Author of the "Attic Philosopher in Paris," etc. Crosby, Nichols & Co., Boston. 1855. 239 pp.

This is a translation from the French, and consists of three tales, illustrating history, and showing the progress of society, in successive periods. The first is the condition of a conquered nation in the times of the ancient Roman; the second, of serfdom; and the third, the apprentice. It is very well written. The language is indeed beautiful; and it well deserves the careful attention which every intelligent reader, who begins it, will certainly give to it.

Klosterheim; or the Masque. By Thomas De Quincey. With a Biographical Preface, by Dr. Shelton Mackenzie. Boston: Whittemore, Niles & Hall. 1855. 258 pages.

This story is laid in Germany, during the "Thirty Years' War," and is written in De Quincey's best style. And perhaps we cannot give a better idea of it than by quoting from the "Biographical Preface" of Dr. Mackenzie, in which he says: "The leading elements and characters of fiction, wild adventure, guilt-born terror, enduring love, and secret mystery, pervade the whole composition, which reads like a true narrative of actual events, so progressive are the incidents, so complete the *vraisemblance*. In some scenes the limits of the supernatural are reached, and the effect is startling," etc.

A Century of Puritanism and a Century of its Opposites, with results contrasted, to enforce Puritan principles, and to trace what is peculiar in the people of Lynn to what is peculiar in its history. By Parsons Cooke, Pastor of the First Church in Lynn. Boston: S. K. Whipple & Co. 1855. Parts 1 and 2.

We have long known Dr. Cooke as one of the most able men and powerful writers in his profession, in this country. He has here turned his great talent to a careful and thorough investigation of the character of Puritanism, as shown by its fruits, in comparison with the fruits of its antagonisms. That this is done with great ability, no man of sense will deny. His statements of facts may be disputed, the sources of his information may be attacked, but his logic is plain and straightforward. Although with its denominational bearings we have no concern, as journalists; yet, as an able discussion of a great question, interesting to all and appropriate to all places, this volume deserves, and will no doubt receive, careful attention and rigid scrutiny. But if false in the lessons which it inculcates, we are quite confident that a man of ordinary powers only had better leave it to others to point out such defects. Till this is done, it will be read with profound atttention.

Early Religious Education, considered as the divinely appointed way to the regenerate life. By Wm. G. Elliot, Pastor of the church of the Messiah, St. Louis. "Feed my lambs." Boston: Crosby, Nichols & Co. 1855. 128 pp.

"To deny the doctrine of regeneration and to remain a Christian, indicates either a misuse of words or an imperfect knowledge of the Scripture." "There is an essential, radical, and thorough difference between the religious and the worldly life." "But how absurd it is to speak of it as a renovation suddenly and completely wrought." "It is seldom effectually accomplished unless when it begins by the Christian education of childhood, and goes on under the exercise of Christian influences through the whole life." Nor is the whole life too long for the result to be attained. "Educate mothers!" These and kindred sentiments are enforced in this little treatise in an excellent spirit and in a pure and simple style. The book is also remarkably attractive in its appearance.

LOUIS FOURTEENTH and the Writers of his Age; being a course of lectures delivered in French, to a select audience in New-York. By the REV. J. S. ASTIE. Introduction and Translation by REV. E. N. KIRK. Boston: John P. Jewett & Co. 1855. 12mo, 413 pp.

No one at all familiar with French history will neglect a well written essay upon this most important reign. The time of Louis XIV. is "one of the great epochs of European history," and the leading men of that period are and ever will be worthy of the study of all who come after them.

The introduction to this volume by Mr. Kirk, extends over three pages, and is well worth the price of the book. It is admirably written. The lectures, eight in number, are replete with valuable thoughts well expressed. Each lecture gives a sketch of one of the great men of that reign. Louis XIV., Blaise Pascal, Corneille, Fenelon, La Fontaine, Boileau, Racine and Moliere, each are described and analyzed. The authors presents this epoch partly in its political but chiefly in its literary features.

Just now, when French tragedy occupies so prominent a place in the view of many in our chief cities, this work possesses peculiar attractions. But at all times it may be regarded as a gem, by the scholar and the statesman.

CONVERSATION; ITS FAULTS AND ITS GRACES. Compiled by ANDREW P. PEABODY. Boston: James Munroe & Co. 1855. 130 pp.

Mr. Peabody is an admirable writer and a finished scholar. No one is more competent than he is for such a service as he has here performed; of course it is done well. It is the best treatise or collection of treatises on these topics we have ever seen. It contains a lecture by Mr. Peabody, one by Francis Trench, delivered at Reading, England, "A Word to the Wise," by Parry Gwynne, followed by the exhibition of many improprieties committed in speaking and in writing, by Mr. Peabody. We heartily commend this little volume to all, and especially to our young friends.

PHYSICAL GEOGRAPHY FOR FAMILIES AND SCHOOLS. By P. M. ZORALIN, author of "Recreations in Physical Geography, etc. Revised, with additions, by WM. L. GAGE, late master of the Taunton High School. Boston: James Munroe & Co. 1855. 153 pp.

This is an excellent little treatise, embracing something upon every department of Physical Geography. It is necessarily very concise and elementary, but perhaps full enough for many classes in our schools. It is illustrated by numerous maps and diagrams. It is well executed by the enterprising publishers.

GLENWOOD, OR THE PARISH BOY. Boston: Shepard, Clark & Co., 110 Washington st. 1855.

This is a well written story of a parish boy, as the title suggests, who sees a great variety of experience, much of which is unfortunate, but which ends in "home and happiness." Some of the scenes are sad, and others are full of fun. We would say an encouraging word, not only to the writer of the story, but bespeak the favor of the public for the young firm by whom it is published. With the "senior" of it, we are well acquainted, and are quite sure that authors who put their confidence in him will not find it misplaced, and that those who do business with him will find him accomplished in his trade and scrupulously attentive to all who have claims upon his time or efforts. God speed them.

NEW MUSIC.

BAKER'S CHURCH MUSIC. A Collection of Hymn Tunes, Chants, Sentences, and Anthems, selected and arranged from the works of both ancient and modern masters with many original compositions. By B. F. Baker. Boston: John P. Jewett & Co. 1855.

The introduction at the beginning of the book is capital. The book itself contains a great deal of most excellent music. Mr. Baker is a man of excellent musical taste, and has composed many very pretty pieces of music, some of which appear in these pages. We find in it but few of the "old tunes;" but this may be better than to buy the same music over and over again, as we have been in the habit of doing, from necessity, in years past. The old collections may be retained, while these new selections, compositions, and arrangements add to the variety, and give excellent opportunities for practice.

Symphonia Grandæva Rediviva: Ancient Harmony Revived; being a Selection of Choice Music for Divine Worship, taken from old and approved authors, published as originally written by Billings, Belcher, Edson, Holyoke, etc., etc., and from several European authors, particularly from W. Tansur's original works. Fourth edition, revised. Boston: S. K. Whipple & Co. 1855.

The peculiarity of this collection of church music is, its republication of the music which our fathers used to sing, and in which, perhaps, some of us joined, and perchance became lost, sometimes, in the complicate labyrinth of the fugue. Complaint, All-Saints New, Ocean, Greenwich, Sherburne, Rainbow, Psalm 84th, New-Jerusalem, to say nothing of Plainfield, Enfield, Mortality, and others, will bring up in many minds associations connected with the very spring-time of life. Those who are fond of this kind of music, will find this, comparatively, the only book worthy of their attention, published in these later times.

Piano Fortes.—Steinway & Sons, Walker street, New-York.

These well-known manufacturers have made sundry improvements in the construction of their instruments, which they regard as of great value. To test the real value of these, as they ought to be tested, requires a longer and more intimate acquaintance with them than we have been favored with; but they certainly make an excellent instrument. At the award of premiums, the committee of the American Institute bestowed upon them the first prize. This is evidence of merit, the importance of which is obvious, from the effort made on all hands to obtain it and to publish it. We have had occasion to express our regrets that farmers and mechanics often seem to strive more to get a premium than to deserve it. We do not intend to intimate that these skillful mechanics have made any effort for a prize beyond the entry of their instrument. All the piano-fortes they make may be as good as those on exhibition. They are men of character, and are worthy of high respect. We recommend all about to purchase inztruments, to examine their assortment.

List of Patents Issued

FROM TERMINATION OF PREVIOUS LIST TO NOV. 6.

C. J. Cowperthaite, for improvement in sewing machines.

Larkin T. Atkins, of Page county, Va., for machine for guaging, measuring, etc., staves.

Phillippe L. Bernard and Jos. Albrecht, of New Orleans, for improvement in the manufacture of acid sulphate of lime.

Thos. Bell and Henry Scholefield, of South Shields, England, for improvement in the manufacture of borax from native borate of lime. Patented in England, July 25, 1854.

Chas. Bishop, of Norwalk, Ohio, for improvement in corn shellers.

John A. Bills, of Troy, for improvement in washing machines.

John Blanc, of New-Orleans, for improvement in preparing vegetable fibre.

Henry B. Canfield, of New-York, for improvement in cut-off valves for oscillating engines.

John G. Dunham, of Steubenville, Ohio, for improvement in churns.

Chas. Davenport, of Watertown, Mass., for improved apparatus for heating buildings by steam.

Stephen Elliot, of Wayne county, Ind., for improvement in corn shellers.

H. H. Fultz, of Lexington, Miss., for improvement in cotton gins.

Daniel George, of Nazareth, for wind regulator for organ pipes.

Elwood Gasette, of Wilmington, Del., for improvement in vibrating pumps.

Peter Geiser, of Smithsburg, Md., for improvement in grain separators.

Samuel Gardiner, Jr., of New-York, for improved amalgamator.

Thos. Goodrum, of Providence, for improvement in portable boring machines.

G. W. Goodale, of Clinton, Mass., for machine for making envelopes, etc.

Samuel L. Hay, of Reading, Mass., for improvement in the variable exhaust of locomotive engines.

Job Jonson, of Brooklyn, for improved fish-hook.

Julius A. Jillson, of Poughkeepsie, and Henry Whinfield, of New-York, for improvement in apparatus for washing and bleaching fibrous and textile substances.

Wm. Lincoln, of Oakham, Mass., for machine for making wire dish covers.

Geo. M. Longacre, of New-Orleans, for improvement in economizing steam.

Harrison Norton, of Farmington, Me., for improvement in in ploughs.

A. S. Pelton, of Clinton, Ct., for improvement in radiators of steam-heating apparatus.

Washington A. Peaslee, of Indianapolis, for improvement in telegraphs.

William Patton of Townsend, Pa., for improved sash fastener.

Robert Rowland, of St. Louis, for improvement in the mutual arrangement of vinegar rooms and white-lead corroding chambers.

Smith A. Skinner, of Derby, Vt., for improved farm gate.

John Smylie, of Philadelphia, for improvement in register bottle fastenings.

Wm. M. Storm, of New-York, for improvement in applying fire-extinguishing cartridges.

Isaac M. Singer, of New-York, for improvement in sewing machines.

Hezekiah B. Smith, of Lowell, for mortising machine.

H. R. Smith, of Massena, N. Y., for improvement in seeding machines.

David Shine, of Philadelphia, for improved daguerreotype plate holder.

Wm. J. Scott, of Carthage, for improved method of feeding the shingle bolt to knives.

Elliott Savage and Noah C. Smith, of East Berlin, Ct., for improvement in machines for double seaming cans.

J. C. Stoddard, of Worcester, for apparatus for producing music by steam or compressed air.

Samuel Vansyckel, of Jersey City, for improvement in interlocking grate bars.

George W. Worden, of Fayetteville N. Y., for guage attachment for sawing machines.

Daniel K. Winder, of Cincinnati, for improved card printing press.

Joseph Welton, of Waterbury, Ct., for leading clasp for cattle.

John K. Weber, of Seneca Falls, for improved method of operating farm gate.

John C. Webb, of New-York, for improvement in argand lamps.

J. S. Brown, of Washington, D. C., assignor to Joseph Kent, of Baltimore county, for improvement in lard lamps.

James H. Cook, Taunton, dust deflector for car-windows.

Albert Butler, Boston, Faucet.

Andrew Hotchkiss, Sharon, a projectile for ordnance.

Benj. Hancock, Troy, N. Y., excavator.

Jasper Johnson, Geneseo, N. Y., vise.

Joseph Keech, Waterloo, N. Y., washboard.

E. McCormick, Connellsville, Pa., seed planter.

John McLaughlin, Steubenville, O., wringer.

J. M. Singer, New-York, sewing machine for clothes.

Benj. Wright and John Bean, Hudson, Mich., grain separator.

Lewis P. Pease, Mt. Carmel, Ill., churn.

H. B. Weaver. S. Windham, Ct., breech loading arms.

Hiram Morris, Elisha K. Gorton, and Edward Sayer, Crawford county, Pa., impact waterwheel.

Charles Love, Peru, Ill., washing machine.

John H. Doolittle, assignor to American Hosiery Co., knitting machine.

P. G. Wynkoop, assignor to H. L. Dodson, Corning, N. Y., seed planter.

Daniel K. Winder, Cincinnati, O., inking apparatus for card printing presses.

Edwin Wilson, Prattsburg, N. Y. extension reach for carriages.

Theodore Ackerman, assignor to H. H. Homan, Wm. Maule, & Theodore Ackerman, Cincinnati, O., casting tea-pot spouts and handles.

John Bell, of Harlem, improved dove-tailing machine.

Cyrus Clapp, Montague, Mass., improvement in scythe fastening.

Wm. W. Cumberland, Newark, improvement in felting hat bodies.

Jno. B. Creamer, Philadelphia, improvement in coal lifters.

Julius C. Dickey, Saratoga Springs, improvement in gas regulators.

Samuel S. Day, New-York, improved daguerreotype plate vise.

Samuel Fays, Lowell, improvement in finishing carpets.

Thomas Harsha, West Union, O. card printing press.

George G. Hunt, Wolcottville, Ct., improvement in melodeons.

Charles Mahon, Washington, improvement in safety attachment in front of railroad cars.

Daniel B. Neal, Mount Gilead, Ohio, improvement in seed planters.

Stimmel Lutz, Philadelphia, improvement in sealing preserved cans.

Oscar Reichenbach, Norriton Township, Pa., improvement in preparing cotton seed for extracting oil.

Robert A Smith, Philadelphia, improved machine for sweeping gutters, etc.

Wm. S. Loughborough, Rochester, machine for composing and setting types.

Joseph Woodruff, Rahway, N. J., improvement in elastic diaphragm steam pressure regulators.

George H. Yard, Trenton, N. J., improvement in whiffle-trees.

Robert Anderson, Brooklyn, and John E. Anderson, New-York, improvement in rice hulling machines.

Wm. B. Crocker, Norwich, Conn., machine for manufacturing corks.

Luther B. Fisher, Coldwater, Michigan, for improved device for gauging and setting saw-mill dogs.

Isaac N. Forrester, Centreville, Va., for improved method of hanging mulley saws.

Julius Fink, Philadelphia, improvement in cooking ranges and air heaters.

Luther B. Fisher, Coldwater, Michigan, improvement in straw cutters.

Liveras Hull, Charleston, improvement in machinery for braiding.

Robert Griffiths, Allegany City, improvement in nut machine.

Peter Hogg, New-York, improvement in surface condensers for steam engines.

Richard G. Holmes and William H. Butler, New-York, improvement in locks.

Jno. Stuber and Thomas Harden, Utica, N.Y., improvement in lamps.

James O. Leech, Ballston, improvement in looms.

H. L. B. Lewis, Philadelphia, for ventilating railroad cars

Henry Luther, Providence, improvement in ring and traveler spinning frames.

L. W. Langdon, Rochester, improvement in sewing machines.

Wm. Mootry, New-York, improvement of stoves.

E. N. Horsford, Cambridge, and James R. Nichols, Haverhill. Mass., improvements in lamps for burning volatile liquids.

Geo. Patten, Washington, D. C., improvement in corn and cob mills.

Owen Redmond, Rochester, for spoke and axe-helve machine.

J. K. Tailor, Binghamton, for method of ventilating railroad cars.

James West, Syracuse, improvement in roofing compositions.

Aretus A. Wilder, Detroit, improved lath machine.

C. P. S. Wardwell, Lake Village, N. H., for machine for cutting double tenons.

Jno. W. Yothers, Spruce Grove, Pa., improvement in bedstead fastenings.

Henry W. Dickinson, Rochester, assignor to Lansing B. Swan, of same place, for machine for feeding paper to printing presses.

Daniel E. Eaton, Boston, assignor to himself and Perley O. Eaton, of same place, for improved burglars' alarm.

John H. Hunter, Baltimore, assignor to Samuel B. Blair, Philadelphia, improvement in gas brackets.

Chas. E. Bertrand, New-York, improvement in sugar filterers.

Samuel Krauser, Reading, Pa., improvement in cider or wine mills.

Henry Burt, Newark, improvement in machines for sawing marble.

Thos. W. Bakewell, Cincinnati, method of heating air for blast furnaces.

George C. Barney. Brookline, Mass., improvement in making whiffle-trees.

Henry A. Bleckman, Ronsdorf, Prussia, [illegible] plane iron.

Andrew Blaikie and Walter Clark, St. Clair, Mich , lath machine.

Alex. H. Brown, Washington, improvement in brick machines.

Thomas Doyle, New-York, improved arrangement of two beam engines with parallel shafts.

Michael Egan, Ogdensburg, improvement in automatic lubricators for railroad axles.

Arasmus French, Waterbury, Conn., improvement in knitting machines.

Daniel Haldeman, Morgantown, Va., improvement in washing machines.

John Harris, Lawrence, Mass., improvement in self-acting mules.

D. W. G. Humphrey, Gray, Me., improvement in locks.

Stephen Hill and Wm. *J. Wood*, Rochester, improvement in gas holders.

Horace Lane, Windsor, Vt., saw-horse.

Jeremiah A. Marden, *Newburyport*, and *Henry* A. Butters, Haverhill, improvement in machines for splitting leather.

Wm. Nixon, Adrian, Mich., improved cutter head for rotary plane.

Bernard O'Reilly, New York, improved composition for kindling fires.

Loomis E. Payne and Orvis Pier, Stowe, Vt., mortising machine.

Chas. Perley, New-York, improvement in chain locker pipes.

Henry N. Pettingill, Rockford, Ill., improvement in steam-boilers.

Robert G. Pine, Newark, improvement in marble sawing machines.

Elias Matteson, Dayton, Walter M. Parris, Dorset, Vt., and Hervey Parris, Pawlet, Vt., improvement in rotary steam engines.

J. W. Ross, Zanesville, improved mode of hanging window sashes.

James Sadgebury, Philadelphia, improvement in clothes clamps.

Samuel W. Shryock, Hopkinsville, Ky., improvement in drilling and boring machine.

Elliot Savage, East Berlin, Conn., improvement in arranging and feeding screw blanks.

Isaac M. Singer, New York, improvement in sewing machines.

J. Sutton, N. Y., self-feeding atmospheric lubricator.

Amos Westcott, Syracuse, improvement in door-springs.

Peter Van Zile, Searles M. Griffin and J. V. Dey, New York, sofa life-boat.

John W. Davies, Richmond, Va., chimney [illegible]

RE-ISSUE.

Jonathan Haines, Pekin, Ill., improvement in harvesting machines. Patented March 27, [illegible].

ADDITIONAL IMPROVEMENT.

Henry Ruttan, Cobourg, Canada, ventilating and warming houses. Patented Dec. 5, [illegible].

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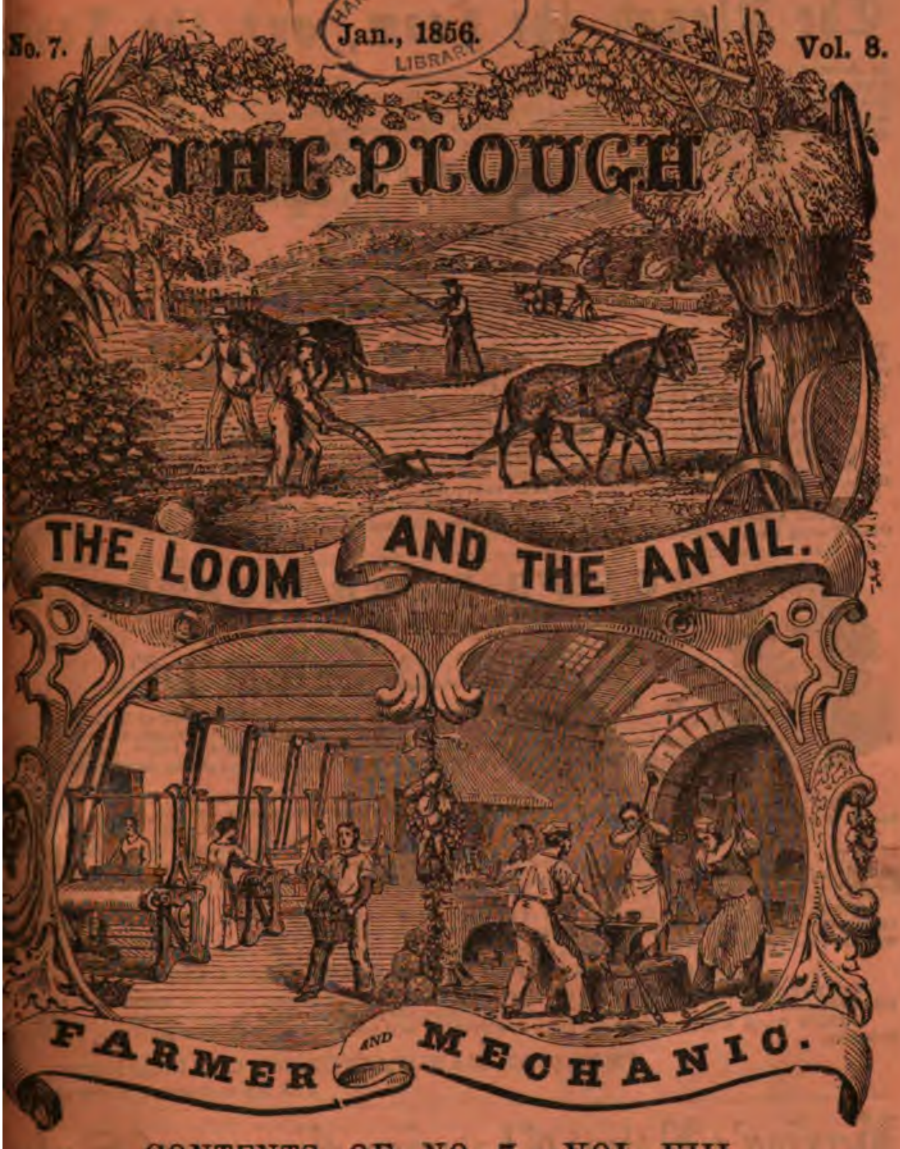

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FARMER AND MECHANIC.

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ALICE ADAMS.

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The Plough, the Loom, and the Anvil.

Vol. VIII. JANUARY, 1856. No. 7.

WHAT CONSTITUTES A PROFITABLE CROP? SOUTHERN POLICY.

This is a question which lies at the foundation of all judicious management. It seems also to be a very simple one. We wish our farmers and planters in every section of country would keep proper farm accounts. The labor of it is but small, and the value of it would be great. Let the time spent upon each lot of ground, the manures used upon it, the crops gathered, with the market value of those the prices of which are well known, and the estimated value of those others used as feed, such as corn-stalks, etc., all have their place in the farm record-book; and this would of itself suggest many important changes in the management of many a farm. But let us recur to our inquiry, What constitutes a profitable crop?

There seems to be a very indefinite idea on this subject, particularly among some Southern writers and orators. Were it not for this it might seem superfluous to say that profit, applied to crops, can always be ascertained by the Profit and Loss account of the producer. No matter how many others may be profited by it—no matter how many ships are loaded with it, nor how many companies get rich in the various uses they make of it—their profit and loss account is a different affair, and tests the value of a very different process. One might enrich and work over a dry sand-bank till he could make a good crop of corn upon it, and selling that one crop to his neighbor B. for one-tenth its actual cost, he, neighbor B., might make a very handsome profit on a second sale. This would not make that crop of corn a profitable one. This is plain, even to a child.

Now we ask whether, independently of all collateral matters, such as increased value of lands, advantages of a home market, etc., etc., which would result from a diversity of pursuits, the cotton crop of this country is a paying crop, in comparison with many other agricultural products, raised both at the North and South?

In our last issue we set forth the facts of the case as far as we had the means at hand. We there found that the prevailing price of cotton for many years, at the seaboard, is eight cents a pound; and from all the statements there set forth, from cotton growers and statistical tables, we found that it actually costs nearly, if not quite, that amount. But take another view.

The whole quantity of land cultivated with this crop is estimated at 5,000,000 acres, and if the gross value of the crop is $100,000,000, the gross product of an acre is $20. Can that be called successful husdandry which obtains by a year's toil only this pittance?

It is practically true that every dollar expended in judicious cultivation and improvement of lands, yields a still greater per cent. in return. The poorest land, and land to which little attention is given, yields the smallest per centage in return. Now laying aside all other considerations, and regarding only the one fact, that almost the entire laboring population of the cotton regions is devoted exclusively to the culture of this crop, might we not infer that such lands were in the best condition, and that they repay the care bestowed upon them with rich and abundant products? The supposition is no sooner made than "twenty dollars an acre" stares you in the face.

Lands are sadly neglected at the North. Much land is used for convenience or otherwise in raising small and unremunerating crops. But who there, would be satisfied with a gross income of twenty dollars to each cultivated acre? On many capital farms, of a hundred acres or more, the quantity of cultivated land is often less than an eighth or a tenth of the total area. To cultivate properly any land, and to almost any crop, requires an outlay of ten or fifteen dollars. At the highest of these, the profit would be but five dollars an acre, and this pittance must pay all the family expenses and the interest of the capital.

That same land, if in good condition, might bring a hundred dollars per acre, under the hammer, and if five dollars is the extent of the profit, the owner therein receives interest on his capital, at five per cent., *with* nothing for tools, stock, waste, repairs, losses, etc., and the land is *annually* becoming less and less able to produce. Is that skillful agriculture?

At the North and West the profit actually earned out of the land is earned by only a portion of the working population. In the New-England and Middle States, only about two-thirds the adult males are engaged in agricultural labor. In the Southern States nine-tenths are thus employed, and many females. A large corps of laborers at the North and West are engaged in more lucrative trades than the farmer, while they create a market for what the farmer can sell. Let all those give themselves to agricultural pursuits at home, the quantity of products would be very greatly increased, though the market value might be at a lower rate than it is now. Had the South such a reserve force, with abundance of stock, what a difference there would be in her financial statistics!

There are lands at the North devoted to the culture of various crops, not remunerative, as wheat for example, in which the returns are only some ten or twelve bushels per acre. And yet on those lands the value of the annual harvest will no doubt exceed the sum of twenty dollars per acre. This may be near the average of some agricultural products at the North, as laid down by staticians who are not familiar with the facts belonging to the subject, but are far from being accurate records. Lands devoted to given crops, as corn, grains, grass, etc., change so constantly at the North, that a discreet man might well be in doubt how to make out his record, even in his own neighborhood. No man can make correct estimates even for a county, without long and laborious investigation. Such difficulties do not present themselves in the cotton-growing States, with few and limited exceptions. The same lands are used, year after year, and almost the whole land is devoted (in more than one sense of the word) to the culture of "king" cotton. Hence statistical estimates in that matter are probably very near the truth.

Profits increase in a much greater ratio than crops. The difference between the profits of a crop of wheat, twelve bushels to the acre, and a crop twenty-four or forty-eight bushels, is much more than one hundred or four hundred per cent. Between the two crops of twelve and forty-eight bushels, the profits of the latter will, perhaps, be ten times the greater. Suppose wheat is worth $1 a bushel; with the first crop the cost is, say $10; the profit will be $2. In the other case the cost may amount to $20. The value of crop is $48; profit, $28, or fourteen fold.

There is another view in which the importance to the South of a variety in agricultural crops assumes, in our own view, even gigantic proportions.

A short supply of cotton raises the price of the article. Suppose, instead of the usual supply of two and a half millions of bales, only one and a half millions were grown. Very nearly the same value must be received for this diminished quantity that is now received for the whole. It might be that more would be received. Besides, these two-fifths of the land, before devoted to cotton, will now be cultivated with other crops, and thus the entire proceeds of some 2,000,000 acres of land, producing, at the rate only of the cotton lands, a gross sum of some $40,000,000 annually, without a day's additional labor, or any material increase of expense. This would be annual net gain, while the lands would be improved by the change.

There is another record in the census tables which, if there is any meaning in its title, confirm our views as heretofore expressed, and authorizes even more unfavorable conclusions as to the profits of this crop. Table 188 shows that in all "the slaveholding States" there is raised 101.03 lbs. of cotton "to each person." That is to say, THE GREAT crop which overshadows every other crop grown, at 8 cents the average price for a series of years, pays a gross annual sum of $8.0924 to each person. Should it cost only 6 cents, the *profit* of this chief crop could be only $2.0924 to "each person. But it uses up, in a double sense, 1,000,000 acres. If this is within gun-shot of the truth, the South surely ought not to support the spindles of the north and of England at rates so ruinous to themselves. That same land, properly managed, ought to earn a net profit of $20 to $40 per acre, and would do so if the system we advocate were properly carried out.

Some months ago we gave it as our belief that some other crop might be profitably grown instead of wheat in many sections of country where that is a favorite growth. Let us look at this.

The census returns are our only data in these matters, in respect to nearly the whole country. A few States have made up their own census, and it is probable that these are more reliable than those under the direction of the general government.

A reference to this source of information gives us the following general result, with certain crops, for all the States:

		Products.	Acres.	Value.
Indian Corn,	bushels	592,071,104,	31,000,000	$296,035,552
Wheat,	"	100,485,944	11,000,000	100,485,944
Oats,	"	146,584,179	7,500,000	43,975,253
Irish Potatoes,	"	65,797,896	1,000,000	26,319,158
Sweet "	"	38,268,148	750,000	19,134,074
Hay,	tons	13,888,642	13,000,000	96,870,494

This gives us, also, the following:

		Per Acre.	Value.
Indian Corn,	bushels	19.03,	$0 50 per bush.
Wheat,	"	9.13,	1 00 "
Oats,	"	19.53,	0 30 "
Irish Potatoes,	"	65.08,	0 40 "
Sweet Potatoes,	"	51.00,	0 50 "
Hay,	tons	1	7 00 per ton.

These returns, no doubt, are only approximations to the truth, and in some crops scarcely so much as that, notwithstanding the laborious study of our friend Mr. De Bow, with all his well-known talent and indefatigable industry, in searching for the truth out of a mass of inconsistent and irreconcilable figures. But, unfortunately, this is, in most States, our only source of general information.

These figures do not give us a very flattering account of the profits of agriculturists. But in many instances, sections of this territory do not appear to reach even these results. Thus Alabama raises but five bushels of wheat to the acre, and fifteen bushels of Indian corn. We do not believe that the wheat or the corn, at this rate, pays the cost of cultivation. Georgia raises 5 bushels of wheat and 7 of rye. These cannot pay their actual cost. Kentucky raises 8 bushels of wheat to the acre, N. Carolina 7, S. Carolina 8, Tennessee 7, and Virginia 7; none of which can pay the cost of growing it.

South Carolina raises but 11 bushels of Indian corn to the acre, and but 12 bushels of oats.

Florida raises but 250 pounds of cotton to the acre, or only half the average crop; Tennessee but 300 pounds, and S. Carolina but 350 pounds. We have just seen that a crop of 500 pounds is scarcely *remunerative*.

Now compare these results with some of the more *favorable products* in other States.

Florida, Texas, and Pennsylvania are returned in the census as producing 15 bushels of wheat per acre, and Massachusetts 16 bushels. But we all know of numerous instances in which 30 and 40 bushels per acre are grown.

Illinois and Indiana grow 30 bushels of corn, Missouri 34, Ohio 36, and Connecticut 40 bushels, as reported in the census. But cases are not unfrequent in which from 80 to 100 bushels are raised per acre, and sometimes 110 are obtained.

How can our land owners be content which such paltry returns for such immense outlays, when the way is so plain to increase their gains five and ten-fold. If wheat can be produced in a given territory at these lowest rates only, let something else be cultivated. Lands will produce something that will pay; and if there should be found some poor, forsaken territory that cannot give the careful tiller a better return for his investments than some that we have here pointed out, let them be abandoned, and more favorable locations be selected. Let them lie fallow a few years, as if they did not exist; and most probably, in a large majority of cases, the natural growth that will spring up will prove beyond dispute that these lands were not as utterly sterile as they were supposed to be, and that the grand mistake was in the treatment of it.

To Preserve Sweet Corn.—Gather the corn just as it begins to harden boil as for the table; cut the kernels carefully from the cob; spread them to dry on a sheet or clean floor, and keep them thus till well dried; then preserve them in a dry, cold and even temperature till needed for use. Soak the corn a few hours, and boil till properly softened, and serve them to your taste.

MR. EVERETT'S SPEECH,

AT THE BANQUET OF THE U. S. AGRICULTURAL SOCIETY AT BOSTON.

MR. PRESIDENT, AND LADIES AND GENTLEMEN:—My most excellent friend, who has just taken his seat, was good enough to remark that he was waiting with impatience for me to speak. Far different was my feeling while he was speaking.

I listened not only with patience, but with satisfaction and delight, as I am sure you all did. If he spoke of the embarrassment under which he rose to address such an assembly—an embarrassment which all, however accustomed to public speaking, cannot but feel—how much greater must be my embarrassment. He had to contend only with the difficulties natural to the occasion, and with having to follow the most eloquent gentleman from Philadelphia. I have to contend with all that difficulty, and with that of following not only *that* gentleman, who delighted us all so much, but my most eloquent friend who has just taken his seat.

And where *two such gentlemen* have passed over the ground, the one with his wide-sweeping reaper, and the other with his keen trenchant scythe, what is there left for a poor gleaner like myself, that comes after them?

With respect to the kind manner, sir, in which you have been so good as to introduce my name to this company, it is plain that I have nothing to respond, but to imitate the example of the worthy clergyman upon the Connecticut river, who, when some inquisitive friend, from a distant part of the country, asked him somewhat indiscreetly whether there was much true piety among his flock, he said, "Nothing to boast of."

If this were a geological instead of an agricultural society, and if it were your province not to dig the surface but to bore into the depths of the earth, it would not be surprising if in some of your excavations, you should strike upon such a fossil as myself. But when I look around upon your exhibition—the straining course—the crowded bustling ring—the motion, the life, the fire—the immense crowds of ardent youth and emulous manhood, assembled from almost every part of the country, actors or spectators of the scene—I feel that it is hardly the place for quiet old-fashioned folks, accustomed to quiet old-fashioned ways. I feel somewhat like the Doge of Genoa, whom the imperious mandate of Louis XIV. had compelled to come to Versailles, and who, after surveying and admiring its marvels, exclaimed that he wondered at everything he saw, and most of all at finding himself there.

Since, however, sir, with that delicate consideration toward your "elder brethren," which I so lately had occasion to acknowledge at Dorchester, you are willing to trust yourself by the side of such a specimen of paleontology as myself, I have much pleasure in assuring you that I have witnessed, with the highest satisfaction, the proof afforded by this grand exhibition, that the agriculture of our country, with all the interests connected with it, is in a state of active improvement. In all things, sir, though I approve a judicious conservatism, it is not merely for itself, but as the basis of a safe progress. I own, sir, there are some old things, both in nature, and art, and society, that I like for themselves. I all but worship the grand old hills, the old rivers that roll between them, the fine old trees bending with the weight of centuries. I reverence an old homestead, an old burying-ground, the good men of olden times. I love old friends, good old books, and I don't absolutely dislike a drop of good old wine for the stomach's sake, provided it is taken from an original package. But these tastes are all consistent with, nay, in my judgment, they are favorable to a genial growth, progression, and improvement, such as is rapidly taking place in the agriculture of the country. In a word I have always been, and am now, for both stability and progress; learning from a rather antiquated, but not yet wholly discredited authority, "to prove all things, and hold fast to that which is good." I know, sir, that the modern rule is "try all things, and hold fast to nothing." I believe I shall adhere to the old reading a little longer.

But, sir, to come to more practical, and you will probably think, more appropriate topics, I will endeavor to show you that I am no enemy to new discoveries in agriculture, or anything else. So far from it, I am going to communicate to you a new discovery of my own, which, if I do not greatly overrate its importance, is as novel as brilliant, and as auspicious of great results as the celebrated discovery of Dr. Franklin; *not* the identity of the electric fluid and lightning, I don't refer to that, but his other famous discovery; that, in the latitude of Paris, the sun rises several hours before noon; that he begins to shine as soon as he rises; and that the solar ray is a cheaper light for the inhabitants of large cities than the candles and oil which they are in the habit of preferring to it. I say, sir, my discovery is somewhat of the same kind; and I really think full as important. I have been upon the track of it for several years; ever since the glitter of a few metalic particles in the gravel washed out of Capt. Sutter's mill-race first led to the discovery of the gold diggings of California; which for some time past have been pouring into the country fifty or sixty millions of dollars annually.

My discovery, sir, is nothing short of this, that we have no need to go or send to California for gold, inasmuch as we have gold diggings on this side of the continent, much more productive, and consequently much more valuable than theirs. I do not, of course, refer to the mines of North Carolina or Georgia, which have been worked with some success for several years, but which compared with California are of no great moment. I refer to a much broader vein of auriferous earth, which runs wholly through the States on this side of the Rocky Mountains, which we have been working unconsciously for many years, without recognizing its transcendent importance, and which is actually estimated will yield the present year ten or fifteen times as much as the California diggings; taking their produce at sixty millions of dollars.

Then, sir, this gold of ours not only exceeds the California in the annual yield of the diggings, but in several other respects. It certainly requires labor, but not nearly as much labor to get it out. Our diggings may be depended on with far greater confidence for the average yield on a given superficies. A certain quantity of moisture is no doubt necessary with us, as with them, but you are not required, as you are in the *placers* of California, to stand up to your middle in water all day, rocking a cradle filled with gravel and gold dust. The cradles we rock are filled with something better. Another signal advantage of our gold over the California gold is, that after being pulverized and moistened, and subjected to the action of moderate heat, it becomes a grateful and nutritious article of food; whereas no man—not the long-eared King of Phrygia himself—could masticate a thimblefull of the California dust, cold or hot, to save him from starvation. Then, sir, we get our Atlantic gold on good deal more favorable terms than we get the California. It is probable, nay it is certain, that for every million of dollars' worth of dust that we receive from San Francisco, we send out a full million's worth in produce, in manufactures, in notions generally, and in freight; but the gold which is raised from the diggings this side, yields, with good management, a vast increase on the outlay—some thirty fold, some sixty, some a hundred. But besides all this, there are two discriminating circumstances of a most peculiar character, in which our gold differs from that of California, greatly to the advantage of ours. The first is this:

On the Sacramento and Feather rivers, throughout the *placers*, in all the wet diggings and the dry diggings, and in all the deposits of auriferous quartz, you can get but one solitary exhaustive crop from one locality; and in getting that you spoil it for any further use. The soil is dug over, worked over, washed over, ground over, sifted over—in short turned into an abomination of desolation, which all the guano of the Chincha Islands would not restore to fertility. You can never get from it a second yield of gold, nor anything else, unless probably a crop of mullen or stramonium. The Atlantic diggings, on the contrary, with good management, will yield a fresh crop of the gold every four years, and remain in the interval in condition for a succession of several other good things of nearly equal value.

The other discrimating circumstance is of a still more astonishing nature. The grains of the California gold are dead, inorganic masses. How they got into the gravel; between what mountain mill-stones, whirled by elemental storm winds on the bosom of oceanic torrents, the auriferous ledges were ground to powder; by what Titanic hands the coveted grains were sown broadcast in the *placers*, human science can but faintly conjecture. We only know that those grains have within them no principle of growth or reproduction, and that when that crop was to be put in, Chaos must have broken up the soil. How different the grains of our Atlantic gold, sown by the prudent hand of man, in the kindly alternation of seed-time and harvest; each curiously, mysteriously organized; hard, horny, seeming lifeless on the outside, but wrapping up in the interior a seminal germ, a living principle. Drop a grain of California gold into the ground, and there it will lie unchanged to the end of time, the clods on which it falls not more cold and lifeless. Drop a grain of our gold, of our blessed gold, into the ground, and lo! a mystery. In a few days it softens, it swells, it shoots upwards, it is a living thing. It is yellow itself, but it sends up a delicate spire, which comes peeping, emerald green, through the soil; it expands to a vigorous stalk, revels in the air and sunshine, it arrays itself more glorious than Solomon in its broad, fluttering, leafy robes, whose sound, as the west wind whispers through them, falls as pleasantly on the husbandman's ear as the rustle of his sweetheart's garment; still towers aloft, spins its verdant skeins of vegetable floss, displays its dancing tassels, surcharged with fertilizing dust, and at last ripens into two or three magnificent batons like this, [an ear of Indian corn,] each of which is studded with hundreds of grains of gold, every one possessing the same wonderful properties as the parent grain, every one instinct with the same marvellous reproductive powers. There are seven hundred and twenty grains on the ear which I hold in my hand. And now I say, sir, of this transcendant gold of ours, the yield this year will be at least ten or fifteen times that of California.

But it will be argued perhaps, sir, in behalf of the California gold by some miserly old fogy, who thinks there is no music in the world equal to the chink of his guineas, that though one crop only of gold can be gathered from the same spot, yet once gathered it lasts to the end of time; while (he will maintain) our vegetable gold is produced only to be consumed, and when consumed is gone forever. But this, Mr. President, would be a most eregious error both ways. It is true the California gold will last forever unchanged, if its owner chooses; but while it so lasts, it is of no use; no, not as much as its value in pig-iron which makes the best of ballast; whereas gold, while it is gold, is good for little or nothing. You can neither eat it, nor drink it, nor smoke it. You can neither wear it, nor burn it as fuel, nor build a house with it; it is really useless till you exchange it for consumable perishable goods; and the more plentiful it is, the less its exchangeable value. Far different the case with our Atlantic gold; it does not perish when consumed, but by a nobler alchymy than that of Paracelsus is transmuted in consumption to a higher life. "Perish in consumption" did the old miser say? Thou fool, that that which thou sowest is not quickened *except* it die. The burning pen of inspiration, ranging heaven and earth for a similitude to convey to our poor minds some not inadequate idea of the mighty doctrine of the Resurrection, can find no symbol so expressive as "bare grain, it may chance of wheat or some other grain." To-day a senseless plant, to-morrow it is human bone and muscle, vein and artery, sinew and nerve; beating pulse, heaving lungs, toiling ah, sometimes over-toiling brain. Last June it sucked from the cold breast of the earth the watery nourishment of its distending sap-vessels; and now *it clothes* the manly form with warm cordial flesh, quivers and thrills *with the five-fold* mystery of sense, purveys and ministers to the higher mysteries of thought. Heaped up in your granaries this week, the next it will strike in the stalwart arm, and glow in the blushing cheek, and flash in the beaming eye; till we learn at last to realize that the slender stalk which we have seen bending in the corn-field under the yellow burden of harvest, is indeed the "staff of life" which, since the world began, has supported the toiling and struggling myriads of humanity on the mighty pilgrimage of being.

Yes, sir, to drop the allegory and speak without a figure, it is this noble agriculture for the promotion of which this great company is assembled from so many parts of the Union, which feeds the human race and all the humbler orders of animated nature dependent on man. With the exception of what is yielded by the fisheries and the chase (a limited though certainly not an insignificant source of supply) agriculture is the steward which spreads the daily table of mankind. Twenty seven millions of human beings, by accurate computation, awoke this very morning in the United States, all requiring their "daily bread," whether they had the grace to pray for it or not, and under Providence all looking to the agriculture of the country for that daily bread, and the food of the domestic animals depending on them; a demand perhaps as great as their own. Mr. President, it is the daily duty of you farmers to satisfy this gigantic appetite; to fill the mouths of these hungry millions—of these starving millions I might say, for if by any catastrophe the supply were cut off for a few days, the life of the country—human and brute—would be extinct.

How nobly this great duty is performed by the agriculture of the country, I need not say at this board. The wheat crop of the United States, the present year, is variously estimated at from one hundred and fifty to one hundred and seventy-five millions of bushels; the oat crop at four hundred millions of bushels; the Indian corn, our precious vegetable gold, at one thousand millions of bushels! Of the other cereal and of the legumious crops I have seen no estimate. Even the humble article of hay,—this poor timothy, herds' grass and red top, which, not rising to the dignity of the food of man, serves only for the subsistence of the mute partners of his toil—

the hay crop of the United States is probably but little, if any, inferior to the whole crop of cotton, which the glowing imagination of the South sometimes regards as the great bond which binds the civilized nations of the earth together.

I meant to have said a few words, sir, on the nature of this institution, and its relations to our common country, as a bond of Union. (Cries of "go on, go on.")

I have lost my voice and strength, and my good friend who has treated that topic never yet left anything to be said by those who come after him I will only, in sitting down, take occasion to express the great interest I feel in the operations of this institution. I see that it is doing, and I have no doubt that it will yet do infinite good.

I beg, in taking my seat, sir, to tender you my most fervent wishes and hopes for its increased and permanent prosperity and usefulness.

VIRGINIA AND THE WEST—ITS INDUSTRY, ETC.

THE message of Gov. Johnson, of Virginia, furnishes much statistical information, and from it we make the following abstract:

"The Central Railroad, which is but the prolongation eastward of the Covington and Ohio road, is in a state of forwardness, and will doubtless be completed within the period prescribed for finishing the Covington road. The same may be said in reference to the Richmond and York River Road; the last connecting link between the Great West and the capes of Virginia.

"The Virginia and Tennessee Railroad is rapidly approaching completion at the Tennessee line, where it will connect with a net work of improvements, terminating respectively at Knoxville, Nashville, Memphis, and Little Rock in Arkansas. Add to these improvements, the Great Water Line of the James River and Kanawha Company, now extending continuously 200 miles.

"The Richmond and Danville Railroad is rapidly approaching completion to the town of Danville, its southern terminus, and before the end of the year will probably be in use throughout its whole extent."

We take the following passages, entire, from the Governor's Message.

"If the interest of our people required this improvement, (the Covington and Ohio Railroad) in 1800, when the combined population of Norfolk, Richmond, and Petersburg, the three largest cities in the State, was less than 17,000, and the revenue of the State less than half a million, how must the demand have augmented now, when the population of those cities has increased to 70,000, and the revenue to two and a half millions. If called for when Mississippi, Illinois, Indiana, Louisiana, Missouri, Arkansas, Michigan, Wisconsin, and Iowa, had scarcely emerged from their primeval state, what must be the comparative demand now, when the above-named States have become the most productive in the Union. In six of these States, including the western portion of Virginia and Pennsylvania, there was raised in 1849 within a fraction of three hundred and fifty millions of bushels of corn. And according to the ratio of increase during the last ten years, we may safely estimate the crop of 1860, within the above region, at five hundred and fifty millions of bushels, which is about two-thirds of the entire quantity raised in the United States. Of this enormous crop, it is fair to suppose that one hundred and fifty millions can be spared for exportation, and will seek a transit through the several thoroughfares terminating on the seaboard, provided the foreign demand shall justify such exportation. And in order to determine how far we should rely upon such demand, let us examine for a moment what can be gathered from an estimate of trade in that article for some years past. By reference to statistics, believed to be reliable, it will be found that the exports of corn and corn meal from this country at different periods, have been as follows:

In 1837,	951,276	bushels.
1846,	3,326,068	"
1849,	15,283,054	"
1850,	7,892,302	"
1851,	4,444,921	"
1854,	20,000,000	"

"The above statement shows conclusively that the foreign demand is rapidly increasing, and that notwithstanding the falling off immediately after the famine in a portion of Europe, the exports for the year *1854* amounted to 20,000,000 bushels, establishing the fact, that it is the cheapest and best bread within their reach, and that its use, at no distant day, will extend throughout all western Europe. In that country it is not grown except *to* a limited extent. Consequently, the supply must be from the United States, and is destined to form a staple article, equal if not exceeding that of cotton in amount.

"I have said nothing of the extensive production of wheat, oats, hemp, and tobacco, all of which admit of transportation, and yield a fair profit to the producer. The census of 1850 shows that the region of country above named produced upwards of fifty millions of bushels of wheat in 1849, and that Kentucky alone exported fifty-five millions of pounds of tobacco. This immense and almost incalculable amount of trade must find its way to a foreign market through some of the great leading thoroughfares now in operation or in progress of construction. The next inquiry is, can Virginia compete successfully for this trade and travel? The ready answer is, yes. Her Atlantic ports are nearer the center of these western and south-western granaries than any other on the coast; her roads of easier grades; her climate more genial, and the scenery more picturesque and inviting, while her ports and harbors are more spacious and safe, and the egress to the ocean more convenient and direct than from any other that could compete with her.

"It is a self-evident proposition that the production of a country intended for market will be conveyed by the cheapest and most direct line; and as the communication with the European markets will be shorter through the ports of Virginia than any other, it is but reasonable to infer that the trade of the South and West will necessarily pass through this channel when these improvements shall have been completed. And yet, for want of them, the census of 1850 shows that there was received, during that year, in the city of New-York, from Western States, 984,434 barrels of flour, 3,344,647 bushels of wheat, 2,608,967 bushels of corn, 146,836 barrels of provisions, besides a corresponding quantity of ashes, stores, wool, butter, cheese, lard, etc., a large portion of which is forced upon a route more than one hundred miles longer than that terminating on the Capes of the Chesapeake, and much of which must of necessity return by way of the Capes in its regular transit to a foreign market, being a palpable innovation upon the established rules of traffic, the end and object of which is gain to the operator.

The foregoing statistics have reference to the section of country bordering on and northwest of the Ohio river; but it should be remembered that at the mouth of the Big Sandy River Virginia shakes hands with her daughter Kentucky, who has long been importuning her tardy mother for permission to pass her rich treasures through the ancestral domain to the Chesapeake, and from thence, by a direct transit, to the different marts of the world. Kentucky proposes also to make common cause with Virginia in the completion of improvements now in progress, by which a direct communication will be formed between Norfolk, Petersburg, Richmond, Fredericksburg, and Alexandria, in Virginia, and Maysville, Lexington, and Louisville, in her own State, and extending from thence, by way of Memphis, on the Mississippi river, to the distant southwest.

The system in progress is equally magnificent in plan and importance; and when completed, in connection with a direct communication with foreign cities and depots, will impart renewed vigor and activity to all branches of business, greatly enhance the value of our lands, build up our cities, and make Virginia conspicuous among the most flourishing in the category of States.

UNITED STATES AGRICULTURAL SOCIETY.

Let all who can, give their attendance at the meeting announced below. It cannot fail to be highly interesting and important.

The Fourth Annual Meeting of the United States Agricultural Society will be held at Washington, D. C., on Wednesday, January 9, 1856.

Business of importance will come before the meeting. Reports from its officers will be submitted, and a new election be made, in which it is desirable that every State and Territory should be represented.

Lectures and interesting discussions are expected on subjects pertaining to the objects of the Association, by distinguished scientific and practical agriculturists. The transactions of 1855, containing a full account of the late exhibition at Boston, will be distributed to such members as are present.

The various agricultural societies of the country are respectfully requested to send delegates to this meeting; and all gentlemen who are interested in the welfare of American Agriculture, who would promote a more cordial spirit of intercourse between the different sections of our land, and who would elevate this most important pursuit to a position of greater usefulness and honor, are also invited to be present on this occasion.

W. S. King, *Secretary.* Marshall P. Wilder, *President.*

December, 1855.

NORTH CAROLINA, ITS CAPACITIES AND ITS CONDITION.

WE have read with much pleasure the following statements of the condition of the lands and of general industry in North Carolina, in the address of Hon. Thos. Ruffin before the State Agricultural Society. We wish there were many more such energetic and efficient advocates of this cause in every part of the country. We take the following from the address of Mr. Ruffin as published in the Carolina *Cultivator:*

"The profits and the comforts of agriculture depend mainly on climate, soil, labor, and the facilities for disposing of surplus production. The two first, climate and soil, should be congenial to products requisite for the sustenance of the husbandman himself, and in demand for others who cannot produce for themselves. In both points North Carolina is highly blessed. In her position on the globe she occupies that temperate and happy mean, which is conducive to health and the vigorous exertion of the faculties and energies of body and mind, in employments tending more than all others to the hospitalities and charities of life and the other virtues of the heart, and which constitutes a climate, that, in unison with her *fertile soil, yields* abundantly to the diligent tiller nearly all the necessaries and many of the luxuries required by man. We do not work barely to maintain life; but, beyond that, to realize gains that may be employed in the addition of other things productive of the elevation and refinement of civilized man. Our winters, by their duration and rigor, do not confine us long within doors, nor cause us to consume the productions of our labor during the other parts of the year; but we are able to prosecute our field operations and comfortably pursue our productive employments throughout the four seasons. Though not of such extent of latitude as thereby to create much variety of climate, and consequently of production, yet the dimensions of North Carolina, east and west, supply that deficiency in a remarkable degree. The proximity to the ocean of her eastern coast, and the difference in elevation between that and the mountains of the west, with the gradations in the intermediate regions, produce a diversity of genial climate which gives to North Carolina, in herself, the advantages of many countries conjointly. By nature, too, her soil was as diversified and as excellent as her climate. The rich alluvial of the east, the extended and extremely fertile valleys of the many long streams—the Roanoke, the Tar, the Neuse, the Cape Fear, the Yadkin and Pedee, the Catawba, and other rivers, which appear upon our map, besides those of smaller streams, almost numberless, all, at a moderate expense of care and labor, return large yields of nearly every grain and other production fit for food. Rice, maize, wheat, rye, barley, oats, the pea, the potato of each kind, besides an endless variety of other sorts, vegetables, and fruits, are found abundantly therein; while higher up the country, in addition, the grasses grow so readily and luxuriantly as to afford not little plots on the moist bottom sof brooks, but extensive pastures and magnificent meadows to the mountain tops. Then, there are the great articles of cotton and tobacco, so extensively used and in such great and increasing demand—to one or the other of which the greater part of the State is eminently suited. Of fruits, melons of every kind and of the best qualities, apples, peaches, pears, cherries, nectarines and apricots flourish almost everywhere, as do also the smaller, but most valuable kinds, as the strawberry, the raspberry, the gooseberry, currants, and, above all, our native grapes, the sweet and prolific Scuppernong and the rich Catawba, which mature well, besides some of foreign origin. When to these are added the fish, with which our eastern waters abound through the year, but are alive in the spring—our naval stores and lumber, our marls, our minerals, gold, silver, copper, and especially the extensive and rich deposits of iron ore, and the coals, one may confidently ask, is there any other country which contains or produces more or a greater diversity of things to sustain life or to bring money? And then let me inquire of you, North Carolinians, what better country do you want than your own? I hold it is good enough—too good, I am tempted to say, for sinful man. It requires only to be dressed and tilled to give nearly all we want on earth, and much for our fellow-man less happily situated. There may at some time be a stint below our usual abundance; but we need never fear a famine here while we work. Indeed, that calamity can hardly befall a country where maize—which we call Indian corn—grows to perfection. There is no record of a dearth, approaching famine, where the principal crop was maize, as it is here. Our climate and soil are so congenial to the other cereals, that a failure of that crop from an unpropitious season is necessarily perceived in time to provide the others, or some of them, as a substitute.

"If not to the lowest, certainly to a very low condition, much of the land in the State had been brought; and the time came, when, if improvement was ever to be made, it would be commenced. I use the expression, 'the time came,' instead of 'has come,' because it is a joyful fact, that some persons in various parts of the State, many in some parts, have improved, and continue to improve their lands and increase their crops—profiting much therefrom in their fortunes and setting the rest of us examples by which we ought also to profit. We have all heard for some years past, that the era of improvement had begun in the great and wealthy county of Edgecombe; and I learn from unquestionable sources, that the intelligent and enterprising planters of that county have been rewarded by signal success. I do not propose to enter into a detail of their system further than to say, that it consists chiefly in draining by ditches and embankments, making and applying composts, the use of guano and plaster of Paris, and the field-pea as an ameliorating crop, as well as food for stock. I advise every one, however, who has the opportunity, by minute inquiries to obtain from those who have put this system into use, detailed information respecting it; and I feel no hesitation in preferring a request to the planters of Edgecombe, as public-spirited gentlemen, to communicate through our agricultural periodicals the history of their improvements, and their experiments—as well those in which they failed as those in which they succeeded, with all other matters which may be useful to their brethren in other sections.

TO PRESERVE SWEET POTATOES.—Dig them carefully, before they are injured by the frost; place them in barrels without bruising their skins, and let the barrels stand upon their ends to prevent their rolling. Keep them as cool as is safe, (guarding them from the frost,) and at an equal temperament. A little dirt will be no injury, and may serve as a slight protection both from injury and from frost.

PELLA, IOWA—ITS INDUSTRY, ETC.

A LATE number of the *Gazette*, published at this thriving place, (and a very good paper it is,) contains an article from which we gather the following facts:

Green hides can be purchased there at three cents a pound, and dry hides at six cents, while in this city they are worth from 15 to 25 cents.

Bark costs 75 cents to a dollar a cord.

Leather is as high as at the East. That used in Iowa is imported from St. Louis, Burlington, Keokuk, Cincinnati, etc.

In Keokuk prices range as follows:

Red sole leather,	25 to 26 cents.
Oak, Cincinnati,	25 " 31 "
Harness,	30 "
Upper,	26 " 36 "

Hence the manufacture of leather in these places must pay a great profit, all the requisites for tanneries are easy of access.

Lard is worth 7 to 10 cents, Stearine candles 30 cents, lard *oil* a dollar per gallon. Tallow averages 10 cents, and mould *candles* 20 cents. Soap grease say 2 cents, and soap from 12 to 15 cents, finer much higher.

There are stone quarries, brick kilns, and steam saw-mills, but building materials are scarce. Lime and sand are abundant.

"All that is required is pressure of one part lime with from ten to twelve parts sand, and they dry and harden in the sun. Cost of machine, with transportation, two hundred and fifty dollars. Cost of patent right for county, say two hundred dollars. Two men and a horse required to work it, and machine averages, say fifteen hundred brick a day, each brick from three to four times as large as a common brick, and ready to put together with a cement composed of lime and water. They will make a handsomer, more durable, and cheaper house than any now built.

" STEAM GRIST MILLS.—There are a large number of our citizens who are already aroused respecting this enterprise, who know its importance, utitity, and profit, and who would gladly engage in it, if they had the means. We learn that Messrs. Grafe & Henckler intend to erect a mill of this description in this place; but we candidly think the field is large enough for two. We live in a well settled farming region, and if such mills are built, they will encourage the growth of grain, and the demand for both home consumption and exportation is sufficient to support and give constant employment to at least two large-sized grist-mills. And it will be certainly to the advantage of the farmer, as 'competition is the life of trade.'

" IRON FOUNDRY.—It is well known that there are large beds of iron ore, of superior quality, in this vicinity, with abundance of coal, wood and water in the same vicinity, so that such an enterprise can be successfully put into operation here. Of course such an enterprise would begin with minor castings of such things as are in universal demand. But we think it would not require a great stretch of imagination to conceive that such an enterprise would gradually enlarge until railroad iron, steam engines, and locomotives would form an important part, and distinguishing feature. Then it would give constant and profitable occupation to numerous workmen, and add materially to our present wealth and prosperity. We long to see some enterprising individual take hold of this work.

"**Glass Factory.**—The risk of breakage is so great on transportation of glass that it forms an important item in its cost to the consumer. All this would be obviated if we had a glass factory here. Abundance of fine sand exists in this vicinity, and potash can be readily procured from the surrounding country.

"**Potash Factory.**—Potash is now worth here about 20 cents a pound. It could be made with profit at 12 cents, and the market would be excellent if we could get soap and glass factories.

"**Chair Factory.**—This useful article of furniture is now about entirely imported from the river and Cincinnati. The cost of transportation would alone form a handsome profit to the manufacturer. The same remark will apply to sash and door factories.

"**Carding Machines.**—Iowa is one of the best States in which to raise sheep in the Union. Wool is worth here from 40 to 50 cents a pound, and yarn from one dollar to one dollar and a quarter a pound. From 50 to 75 cents a pound is pretty good profit."

We give the above statements and commend them to the attention of our mechanics, etc., who are in the market, that they may carefully view this field. It offers strong inducements for young men of enterprise, and we hope to see this section rapidly occupied with every form of industry. God speed our friends in the far West.

THE COST OF RAISING COTTON.

[We avail ourselves of the following very satisfactory testimony in corroboration of our own estimates of the value *to the planter* of the latter crop, by one who evidently knows how to estimate the expenses of agricultural products. We hope our Southern friends—whom we count by many hundreds—will give them the attention they deserve.]—Ed. P. L. & A.

Messrs. Editors:—Knowing, from the regular perusal of your paper, that you do not desire to circulate erroneous information, I take the liberty of correcting a very incorrect statement which appeared in your tri-weekly issue of the 28th ultimo, in a communication headed "The Gulf States of our Union and the Valley of the Mississippi." The misstatement, doubtless an unintentional one, occurs in the following paragraph:

"The cost of raising cotton is four cents a pound; one bale of five hundred pounds to the acre is considered a fair crop. A twenty-acre field yielding twenty bales, or ten thousand pounds, at eight cents a pound, only yields a profit of four hundred dollars." [See our leading article.]

The true state of the case can best be reached by taking the case of an improved plantation of the most available size and with a proper number of slaves upon it, and making the estimates from that basis. This is a most favorable way of making the estimate to exhibit the largest profit; for it is well known to every experienced planter—and how dearly some have purchased their experience!—that the expenses incident to the opening and improving of a plantation for several years after the undertaking is begun, eat up all the profits and often leave a load of debt behind, sometimes forcing a sale of the whole property, which thus leaves the lands of the original proprietor to fall into those of some wiser man who has eschewed the toil and hazard of opening a new place.

A plantation of sixteen hundred acres, one thousand of which is cleared land, and has the necessary cabins and other buildings necessary for carrying on a place of that size, is worth from forty to sixty dollars per acre, according to locality. Estimating its value at the lowest rate, say $40 per acre, and it makes $64,000. To work this place to advantage—that is, to cultivate seven hundred and fifty acres in cotton and two hundred and fifty in corn, peas, potatoes, etc.,—will require a force of 75 effective hands, which, with the young and old, who do not go to the field to work, who would ordinarily be united to the 75 hands, would constitute about 130 or 140 slaves on the place, who, at an average $600 a piece, would be worth about $75,000; 50 mules worth $130 each, would make $6,400 more; 100 head of cattle may be estimated at $1,200; 300 hogs may be estimated at $700; 12 yoke of oxen at $600; wagons, farming utensils, furniture, blacksmith and carpenter's tools, and all the other necessaries, including gin-stands, mill, etc., may be estimated (and it is an under estimate) at $2,000; so that any one, by simply adding these different amounts, will see that the entire value of such a place as I have supposed will be about $150,000; and *this* upon the supposition that the place is worked without a *steam-engine to gin the* cotton with.

Such a place, with favorable seasons, will make ten bales to the hand, or about one bale to the acre, and sometimes when everything is prosperous, an early spring and a late dry fall, as many as twelve bales to the hand, and in some very extraordinary instances even as high as fifteen bales have been gathered. But on an average of ten seasons every experienced planter will agree that eight bales to the hand is an outside estimate, making a crop of about six hundred bales; and taking 8 cents as the average price per pound, which for swamp cotton is again a full estimate, and the gross income for a single bale of 400 pounds, which is the well known uniform weight, will be $32, and the whole crop $19,000, exclusive of the cost of shipping, and soiling the crop, which amounts to at least $2 50 per bale in every case, and where the place is distant from market nearer twice that; leaving say a net income of about $18,000. From this must now be deducted the cost of cultivating the place, overseer's wages, feeding, clothing, and doctoring the negroes, supplying wear and tear of tools, and losses of mules and stock, altogether, on a place of the size I have named, not falling short of $6,000, many planters estimating their expense at $100 to the hand, which would make $7,500. Taking it at the former sum and we have the net profits of such a place as I have described amount to $12,000, being just about an interest of 8 per cent. on the value of the capital invested.

This, Messrs. Editors, I believe a fair statement of the profits of the cotton planter; and you can now see how it comports with the fancy sketch of your correspodent. If I have exaggerated at all it has been in giving too favorable an aspect to the side of A PLANTER.

VICKSBURGH, July, 1855. [*National Intelligencer.*

SHELBY COUNTY (ALA.,) LIME.

[WE are always glad to announce such statements as the following, which we find in the Alabama *Planter*.—ED. P. L. & A.]

"We received yesterday a specimen of the lime manufactured by the Shelby County Lime-Kiln Company, (situated some sixty miles above Salem) under the management of Mr. Robert Hall. Those interested in the article can see it by calling at this office.

"The company, we learn, has a large capital, and is getting ready to furnish one thousand bushels of lime per day. It is manufactured from blue limestone, which, we believe, is considered the best stone for the purpose. The supply of material is inexhaustible.

"Several barrels of the article have been brought to this city for trial, and some of our most experienced builders pronounce it superior to the Thomaston lime. Others are about to put it to test, and their opinions we shall, doubtless, have presently.

"The specimen at this office is extremely fine, and worthy of the attention of dealers and builders.

"There is only now one drawback to the enlarged operations of the company, and that is the uncertainty of communication with this city. The confident belief is that if the supplies can be got here it will drive all other limes from the market. And this, after all, is the chief obstacle to the development of the immense wealth of the interior; and is another reason why our citizens should give their attention more generally to the subject of internal improvements. With a certain communication, either by river or railroad, with the seat of our mineral wealth, within a few years we should have numerous companies of wealthy men diverting their capital from cotton to these mines of wealth which, in many cases, are now almost worthless. The result would be good both for town and country. It would draw us more closely together, and save to our people hundreds of thousands of dollars which now go to enrich places which have no interest or sympathy in common with us.

"If the rivers do not cheat us this season, however, the company will find means enough to send hither large quantities of this lime. We wish it all the success which it seems to merit."

COMMERCE OF THE COUNTRY.—The Washington papers contain official documents giving in detail the exports of domestic merchandise from the United States to foreign ports for the year ending on the 30th June last.

The total exports of breadstuffs amounted to $21,557,854; of provisions, $15,138,277. Making a total of breadstuffs and provisions of $36,696,131, against $65,901,240 of the same in 1854; showing a decrease in 1855 of $29,205,109.

TOBACCO EXPORT, JANUARY 30, 1855.

Treas. Year.	Hogsheads.	Value.
1855	150,213	$14,712,468
1854	126,107	10,016,046
Increase	24,106	$4,666,422

France is the largest importer of our tobacco, taking 40,866 hogsheads Great Britain takes 24,303, Bremen, 38,053, Holland, 17,124; the balance is distributed among the different Continental States.

The following is a comparative export of the great staples:

	1855 Value.	1854 Value.
Cotton,	$88,143,844	$93,596,220
Bread and provisions,	36,696,131	65,901,240
Tobacco,	14,712,468	10,016,046
Rice,	1,717,953	2,634,127
Total	$141,270,396	$172,147,635

Of the 1,203,540 bbls. of flour exported in 1855, New-Orleans exported 345,743 bbls. Of the 294,440 bbls. pork, New-Orleans sent off 168,311 bbls. She sent off 43,312 hogsheads of bacon, of 38,186,989 lbs., the entire amount exported from the country; 791,635 kegs of lard, of 39,025,492 lbs. We exported 1,270,264 bales of cotton, and 64,100 hhds of tobacco.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

FOREST TREES OF NICHOLS, TIOGA CO., N. Y., AND THEIR USES.

CARTANEA VESCA AMERICANA, OR CHESTNUT.

THE chestnut is found in this vicinity growing on the river and creek flats, also on the highest hills, in nearly all situations. Trees on the flats are generally bushy, like the apple-tree, and seldom over 40 feet high, and two feet in diameter. They have generally grown since the land was first cleared, while on the tops of the highest hills they are from 70 to 90 feet high, and from 2 to 5½ feet in diameter. A number of old trees on a high ridge near here will average 3 feet and occasionally one near 6 feet.

Leaves oblong lanceolated, accuminate, mucronately serrate, smooth on both sides, ribs to leaves fifteen on each side, stems to leaf about three-fourths of an inch long, leaves from 8 to 12 inches long, and 2 to 3 inches wide. Sterile aments about 6 inches long; the numerous flowers, white or cream color, and show to a great advantage a mile or more, emitting a sickish sweet odor that can be smelt a long way. The chestnut was in full bloom this year the 18th of July, and is frequently in bloom the 10th of July. We generally think it the best time to sow buckwheat when the chestnut is in full bloom.

Fertile involucres or burs solitary or several in a cluster, like apples, only when grown large, frequently two inches in diameter, nearly round, and covered with slender compound rigid prickles, which are one-fourth of an inch long, hard and stiff when ripe, making it difficult to handle. These burs are a beautiful green, till within a few weeks of being ripe, when they turn a brownish drab. Each bur generally incloses three nuts; one or two are often abortive. Nuts varying in form according to the number in an involucre or bur. When there are two, each will be compressed on the inside;

and when three are perfected, the middle one will be flattened on each side.

The chestnut flowers here from the 8th to the 18th. Fruit ripe in the latter part of October, generally not till after a hard frost.

The chestnut is the most valuable tree we have in this vicinity. It splits very readily into posts or rails; and when green chops very easily. A man that understands the business will often split from three to five hundred rails in a day. The timber is light and stiff when seasoned. The rails last from thirty to forty years, and posts in the ground from twelve to sixteen years, and perhaps much longer. The chestnut after being cut down sprouts very much. The sprouts frequently grow five feet in a year, and by letting them stand, there will be a large growth of timber in a few years. If the land is to be kept clear, the sprouts are easily knocked off. Sprouting for successive years generally kills the stump, when it rots out in fifteen or twenty years, unless very large. But the chestnut stump comes out early in comparison with the durability of the timber. Stump machines are getting so common here, that stumps of all kinds of timber are readily pulled when green.

As yet, chestnut timber has been used only for fencing in this vicinity, with the exception of sills, plates, etc., for frames.

The nuts that grow on chestnut trees in some years are quite abundant, and are worth from $2 50 to $3 per bush. ROBERT HOWELL.

NICHOLS, Dec. 18.

INSECTS INJURIOUS TO VEGETATION.

HEMIPTERA. (Continued.)

WE proceed with the description of insects of this order, and next describe the

COCCIDÆ or BARK LICE.—They have thread-like or tapering antennæ, longer than the head; females wingless, but furnished with beaks; males with wings, which lie horizontally on the top of the back, and are not furnished with beaks, (suckers.) Feet with only one joint, terminated with a single claw; skin firm and hard; two slender threads at the extremity of the body in both sexes. The females are without piercers. They are about one-tenth of an inch long, and of an oval shape.

These insects live chiefly in the barks of the stems of plants, though sometimes found on the leaves and roots. In their early stage the head is concealed beneath the shell of the body, and the beak seems to issue from the breast. The legs, six in number, are very short, and invisible from above. The females scarcely undergo any change except an increase in size, though the males pass through a complete transformation ere they arrive at their perfect state. They are found early in the spring, in a torpid state, adhering close to the surface of the bark, with the head upwards, and an attempt to remove these insects generally crushes them, when a dark-colored fluid issues from the body. At a later season, if lifted from the bark by a knife-blade, numerous eggs will be discovered, and the insect appears to be dead and dried up. On the approach of warm weather, the young escape through the lower end of this shield, and move about with considerable activity.

These insects form the Genus Coccus. They present various aspects in regard to their covering. The *Coccus cacti*, or cocheneille of commerce, is covered with a mealy powder. So also is the Coccus Adonidum, or *mealy bug* of our green-houses. Some are hairy or woolly, and many others are naked and dark-colored. The young are generally white, or nearly so. They draw their sustenance from the bark, and plants often suffer severely from the loss of sap exuding through the punctures thus made. In process of time they fasten themselves by threads to the bark, and undergo a transformation. If these shields are raised, the rudiments of wings, antennæ, etc., appear. This is their pupa or chrysalis state. The larger insects are the females, who remain immovable. After pairing, the females increase in size. The eggs, which are numerous, pass under the body of the insect, which gradually dries up as already stated. The bark-louse of the apple-tree produces two or more broods in a season. The females survive the winter and lay their eggs in the spring. The males die in autumn.

Young apple-trees suffer from the attacks of these lice.

The eggs of these insects are very numerous, 30 or 40 being often found under a single shield. They are white and oblong, like snake's eggs. They begin to hatch, in the Northern States, about the 25th of May.

Chichadees and *Wrens*, and some other birds, are the natural enemies of these lice, and devour great numbers of them. Ichneumon flies of very small size also destroy them.

Soap-suds mixed with lime is a useful application. The lime should be added in such quantities as to make a thick whitewash. This should be applied with a brush, so as to fill all the crevices, cracks, etc., existing in the bark. It should be applied in June.

There are other kinds of lice found on these trees, of a different species, one of which is nearly the shape of an oyster-shell, which are dormant in winter. The female is minute, wrinkled at the sides, flattened above, of a reddish color. She undergoes no change. The male completes its transformation about the middle of July. The perfect male is scarcely more than a point, but under a microscope appears furnished with whitish wings, long antennæ, six legs with their joints, and two bristles, terminating the tail.

The young lice are pale yellowish-brown, oval, and appear like scales. They move about for a while, and then become stationary, and after pairing lay their eggs.

The Cotton louse sucks the sap from the leaf and tender shoots of the plant, by which the vigor of the plant is wasted, and the leaves curl up, turn yellow, wither and die. It is of a green color, about a tenth of an inch in length. Two slender tubes, growing from the abdomen, secrete the "honey-dew," which attracts multitudes of ants. The young insects appear during the summer, and the depredations of the insects continue till November.

It is impossible to describe all the numerous species of the louse, and a microscopic examination would scarcely enable one not having great experience to distinguish them. Nor is this ability requisite for the agriculturist, as the same means are efficient alike for the entire order. The minute classifications are important only to the student of natural history.

LIST OF FRUITS FOR OHIO.

TAKEN from the published report of the Ohio Pomological Society and the State Agricultural Convention at Columbus.

The object of the meeting was stated by Dr. Warder to agree upon a list of apples to be recommended for general cultivation throughout the State of Ohio.

On motion, it was agreed to take up the several kinds of apples in the order of their season, as summer, fall and winter varieties.

Early Harvest was reported as good in all parts of the State—not a profuse bearer, but fair in most localities; does best in rich or well manured soil. Highly approved wherever known. Recommended unanimously.

Early Strawberry.—Highly approved in south and center of the State, also in north-west and north-east. Not much known in some of the northern counties, but does well wherever known. Recommended unanimously.

Large Yellow Bough or *Sweet Bough.*—Gen Worthington has grown this extensively for many years in Ross County, and approves it very highly. Was reported good in all parts of the State. Not a great bearer. Dr. Warder proposed to recommend it only for limited cultivation. Recommended with one dissent.

American Summer Pearmain.—Proposed by Dr. Jones, and highly recommended by all who know it, but passed as not sufficiently known.

Golden Sweet.—Generally known in different parts of the State, and highly recommended, especially for baking, for apple butter, and for stock. Recommended with one dissent.

Maiden's Blush.—Commended by numerous gentlemen, especially for its fine looks and for market. Some like it for cooking and for the table; does well in all parts of the State—is larger and of less flavor south than north. Recommended with several dissents.

Fall Pippin or *Golden Pippin.*—Well known and highly approved in all parts of the State. Keeps best and has best flavor at the north, but is largest at the south. Recommended with one dissent.

Cooper.—Dr. Hempsted said he believed the history of this apple had not yet been fully stated. The grafts were brought from Boston to Marietta by Mr. Adams, of Zanesville, who called it a *French Apple*, the original trees having been imported, as he believed, from France. All present who knew the apple called it first-rate; but some gentlemen thought it not sufficiently known to warrant its recommendation for general cultivation, especially in the northern part of the State. Recommended with one dissent.

Rambo.—Was pronounced first-rate, especially in central parts of the State. Dr. Warder said it was good at the south, but ripens early, becomes dry, and does not keep as well as at the north. Recommended unanimously.

American Golden Russet.—Gens. Worthington and Green said it was first-rate when in perfection, but with them it soon perishes, and is not generally of fair and healthy growth. Mr. Steele finds it first-rate, good size and trees healthy, considers it the best of winter apples for the table. Other gentlemen said it was not of attractive appearance, and not good for market; though persons who knew it would buy it. Dr. Cone said trees were not healthy with him. Dr. Warder considers it first-rate—tree of slender growth. Recommended unanimously.

Yellow Bellflower.—Much approved in most parts of the State; not so large and handsome at the north as in central Ohio. Recommended with several dissents.

White Bellflower or *Ortley.*—Mr. Ernst and others from southern Ohio approve it highly; and all agree that it is a good apple, and adapted to most parts of the State. Recommended with several dissents.

Newtown Spitzenberg.—Very highly approved at Cincinnati, and also in other parts of the State wherever known, for table and for market. Recommended.

Winesap.—Well known and everywhere approved. Recommended unanimously.

Talman Sweeting.—Recommended and several others as very excellent for baking, and as a great bearer, profitable for stock. Passed, as not sufficiently known.

Roxbury Russet.—Condemned by many as uncertain, and liable to speck and rot. Passed as not worthy of general commendation.

Newtown Pippin.—Highly commended generally, but Gen. Worthington and several others found it to speck with them. On sandy soils not generally good, also on beech clay soils at the north. Professor Mather thought it was good only on limestone soils. Gen. Worthington thought this and some other *old* kinds are losing their health and vitality. Recommended with several dissents.

Rawles' Janette or *Geneting.*—Dr. Warder said this was *the* winter apple of southern Ohio, Kentucky, etc., but he was afraid it was not generally known through the State, especially in the north. Several gentlemen from different parts of the State said they knew it, and approved it highly. Recommended unanimously.

Winter Sweet Paradise.—Specimens presented by Mr. Brush, who commended it very highly, especially for baking; read Downing's description. Has been grown by Wm. Merion, near Columbus, for ten or twelve years. Said to have come from Pennsylvania. Mr. Bateham thought it was identical with the *Wells Sweeting*, of Rochester, N. Y. All agreed that it was a first-rate sweet apple. Recommended for general trial.

Broadwell Sweet was highly commended by Mr. Ernst and others from Cincinnati, near which city it originated. Elliott's description was read, and his commendation seconded. Recommended for general trial.

Belmont or *Gate.*—Mr. Bumrickhouse said this apple was considered indispensable in his region; thinks the tree rather tender. Gentlemen from central and northern Ohio spoke of it as very excellent, and deserving general cultivation. Recommended for general cultivation in northern half of the State.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

DRY BROTH.

Dry broth is a very useful and nutritious article. It is very common in Russia, and in other countries amid huge forests where game is scarce and fuel of great price. In traveling in that country, I came to a place where this broth was manufactured, and remained there three days for the purpose of learning the process. It is as follows:

Take half of an ox, half of a sheep, entire, ten fowls, ten partridges, and cut all these into small pieces. Place it in a copper boiler well tinned, and pour six quarts of water to one pound of flesh. Cook this in the open air or in a basement over a moderate fire, skim it carefully, and after the soup is well cooked add some vegetables, &c., that is to say, celery, pork, parsley cut fine, and cook the whole ten hours or more, or until the soluble portions of the flesh are dissolved. Then strain the liquor through a colander. Place the residue under a press and pour what flows from it into the soup. The residue of the flesh is comparatively tasteless, and may be given to dogs, swine, &c.

The soup which has been strained, is again poured into the boiler, and made to boil moderately. It should be taken from the fire at such time as, when poured off and allowed to cool, it will become a compact mass, resembling chocolate. This moment must be determined by repeated trials. The soup should then be poured into vessels of tin or potter's ware, and suffered to remain several days. The mass is then placed in the sun or in a dry room, until it shall become dry soup.

Dry soup is prepared of different sizes, of one, three, six or twelve pounds, and is sold by weight.

It should be observed that in its composition there is no salt, nor spice. Salt has a tendency to soften and moisten it, and any spice does not suit all persons alike. Besides, the broth, being administered as soup and dissolved, would not be suitable for the sick.

This dry broth forms a very convenient kind of food for those traveling on foot or through uninhabited districts.

The Russians who make the voyage from Moscow to Kiachta, over the steppes of Siberia, scarcely use any other kind of food. A vessel holding six or eight ounces of boiling water, into which is thrown a half pound or more, according to the number of guests, seasoned with salt and pork, and with garlic if to their taste, poured upon biscuits, furnishes a nutritious, wholesome and pleasant repast. For sailors it is useful as a preventive of the scurvy. (When wrecked, should each man secure a few pounds of it they might thereby save themselves from starvation and death.) In long journeys over prairies and desert countries, it is of very great value.

This broth might be prepared with the beef and mutton, without the addition of other things. But it would not be so pleasant to the taste, nor command so high a price. SANKWSKI FELIX.

[*Translated from the French manuscript by the Editor.*]

THE DIFFICULTY OF JUDGING BETWEEN FIRST-RATE ANIMALS.

THE following, from the *Mark Lane Express*, may be read with profit by those acting as judges at our public fairs. The recommendation in the last paragraph may be useful to State Societies:

"SIR:—Allow me to offer a few remarks on this subject, as applicable to the approaching meetings of our leading agricultural societies, now close at hand.

"The difficulties which are often experienced by the most competent judges, in deciding between two really first-rate animals of a first-rate sort, are greater than the majority of people who have never acted in the capacity of judges have any idea of. I am happy to say that at the meetings of the Royal Society such cases frequently do occur, and, I hope, always will, and with the wish that what I here assert may tend to assist judges on their laborious duties, I am induced to trouble you with these remarks.

"I will take an instance of two first-rate short-horned bulls, neither of them having a faulty point. Judge A. says, 'What a superb back No. 1 has!' B. says, 'But look at that depth of carcase in No. 2!' 'But the length of quarter in No. 1!' continues A.; and in return B. draws attention to the silky texture of the skin of No. 2. The question is here put to Judge C. who *should* decide the case; but he has to balance, in *his* mind, whether a superior back is more to be considered than extraordinary depth of carcase; and again, is a first-rate quality of hide equivalent to an unusual length of quarter? And thus points, without having some definite value attached to them, might be compared one against the another *ad infinitum*, without ever coming to a satisfactory conclusion.

"Now, what I wish to see is, a definite value affixed to every point in the perfect animal, and when such cases of nicety as I allude to do occur, let the judges take point by point, and compare value in numbers, and then the animal commanding the highest amount would be the one selected. If the perfect animal were 50, the component parts might be something as follows:

	Bull.	Sheep.	Boar.
General Appearance, - - -	8	12	20
Back, (length and width,) - - -	8	10	8
Chest, - - - - - - -	6	4	5
With of hips and loin, - - -	5	4	5
Depth, (rotundity of carcase,) - -	5	5	4
Quarters, - - - - - - -	5	3	3
Head, - - - - - - -	4	4	9
Hide, (or wool,) - - - - -	4	5	2
Bone, - - - - - - -	3	3	2
Shortness of legs, - - - -	2	1	2
	50	50	50

"This table is merely on a rough scale; but I think if the committee of the Royal Society would devote one of their meetings to the consideration of the subject, their time would not be wasted; and a scale made under their direction, similar to the above, would be received by the agricultural public as an authentic data to refer to.

"Hoping that these remarks may draw the attention of our great stock-breeders to the subject, I remain yours, etc., X. X."

NATIVE GEORGIA WINE.

The cultivation of the grape has received of late some attention from our Southern friends. We are exceedingly glad to be able to add this to the variety of products for which extensive tracts of land are well adapted. A late number of the Augusta *Chronicle* contains a statement on this subject which we copy, that some at least of our many Southern readers may try the experiment for themselves. We also wish to avail ourselves of so favorable an opportunity to commend the enterprise which of late is so manifest in many of the Southern States. There is no reason why every useful mechanical and manufactured product of the North and West should not be also produced at the South. But for our extract:

"On Monday, the 12th inst., quite a large party of gentlemen of this city and its vicinity assembled at the store of Messrs. Dawson & Skinner for the purpose of sampling some native wines made by Mr. Charles Axt, at his vineyards in Wilkes county, Georgia. The wine offered was the pure juice of the Catawba grape, only about eight weeks from the press, and of the quality known as "still Catawba." It was very impartially tested, side by side with several other brands, from some of the most noted Ohio vintners, and the best judges present unanimously pronounced it superior in aroma and purity of flavor to any native samples yet presented to their notice, and predicted for it the highest degree of excellence, when it shall have attained the proper age.

"The business of grape-growing and wine-making may now be considered most auspiciously started in Georgia and the South; and it only remains for those who prefer the pure and wholesome juice of the grape to the vilely adulterated mixtures of commerce, and who wish to aid in the successful development of a most important and promising enterprise, to give the matter their countenance and support at the outset; and thus secure to the South, in a few years, an entirely new source of large income and profit."

BUTTER MAKING.—SWEET CREAM.

A WRITER in the *Ohio Farmer*, discussing the propriety of allowing cream to turn sour before it is churned, says:

"If milk be churned as soon as drawn from the cow, and butter be separated, the buttermilk will be found to contain acid, though it may not taste very sour. Whether this lactic acid is a cause or an effect of the separation of the butter, has not been satisfactorily settled; but that it is always present after butter has been churned is a well ascertained fact, and this fact all scientific books in the dairy assert. Johnson, Ballantyne, Ayton and Traill, all teach that "butter made from sweet cream is less in quantity and requires more labor to produce it, and is therefore unprofitable."

We do not quite agree with this. We cannot imagine why the presence of a minute portion of lactic acid should be presumed without evidence to promote the gathering of the butter. That should be proved ere it is put forth. We know that nice tests often discover the presence of lactic acid in *new milk*, and we have good reason for believing that the process of churning, by which the temperature of portions of the milk must be somewhat affected, should tend to increase the amount of acid. We are not satisfied that the presence of lactic acid is either the cause or the effect of the separation of the butter. Nor does the fact that sweet cream requires longer churning than sour cream, *if it be a fact*, show that it is less economical. The quickest process is not always the best. Besides, our scientific men are not the best authority on such questions. We should much prefer the opinions of judicious dairymaids. We have facts, from such sources, which we would offset against a host of mere chemists, though ever so "scientific." Ask the dairymen and women of Orange county, so widely distinguished for its good butter, and the information they would give would not strengthen the doubts which this writer suggests.

We do not believe that the presence or the absence of lactic acid can have any effect on the "quantity" of butter. The butter is there confined in sacks, and lactic acid cannot increase it, nor can butter produce lactic acid. Science cannot begin to give a reason why it should be supposed to do so. Facts show that the best butter, the butter that with a given amount of washing will retain its sweetness the longest, is from sweet cream.

But we doubt whether sweet cream requires more labor to "produce" butter than sour cream. Each little sack must be broken, and its contents gathered. We can see how the presence of *very* sour milk might hasten the process of gathering or collecting the butter, after it has "come;" but this is not what the chemists mean to say; and whatever they mean, their opinion is of no more value than that of any mere professor of science, who may be fond of his own theory. Such questions are for actual *practical* churners to determine, who use various kinds of churns and *various qualities* of milk and of cream, and so far as our experience, which is not small, and our inquiries, which have been extensive, can elucidate this question, the conviction is full and complete, in our minds, that it is desirable to have sweet cream for butter that is to be kept a long time. Sour milk does not of necessity make sour butter, but the presence of sour particles in the butter made from sour cream cannot be *certainly* avoided by almost any amount of washing, and there may be enough present, after very frequent washings, to convert the whole, ere long, into a rancid mass. Hence we go for sweet cream.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

COMPARATIVE VALUE OF CROPS.

MR. EDITOR:—We have kept an account the past season of the cost of cultivating different crops, thinking it may be interesting to some of your readers. We make the statement as brief as possible.

Rye ½ bushel sowed Sept. 16, 1854, on corn stubble. Quantity of land, half acre:

Seed and Cultivation,	$3 38
Seven bush. Rye,	8 75
Leaving as profit to land,	$5 37

Wheat sowed April 24th, 1855, where corn had grown the previous year. Seed, 1 bush.; land, one acre; injured by weevil and worms.

Seed and cultivation, interest, taxes, etc.,	$12 50
12 bush. of wheat at $2 25,	27 00
Profit to land,	$9 50

Corn No. 1, ploughed Nov., 1854, 8 inches deep, a sod, manured 25 loads of compost and manure on the furrow, and in the spring, and harrowed well, had been in grass from 6 to 15 years; land, 183 rods.

Whole expense of cultivation, interest on land, taxes, etc., - - - - - - - -	$35 09
60 bush. shelled corn at $1 25, - - - -	75 00
Top stalks and butts, and 12 bush. small corn on the ear, - - - - - - - -	23 00
Profit to land,	$62 91

No. 2, about ⅔ in clover the previous year, had been mowed twice, and winter killed, ⅓ under the plough for 3 years, with a rotation of crops without manure.

16 loads of corn-manure spread broad-cast and ploughed 8 inches deep in May, 1854; land, 126 rods.

Whole expense of cultivating, interest, etc., - -	$27 55
55 bush. of shelled corn - - - - - - -	68 75
Top stalks, etc., and ten baskets of small corn, - -	20 00
Left to land,	$61 20

Remarks.—Corn planted from May 16th to 23d, 3 feet by 2½, 3 stalks in a hill. A cultivator was passed between the rows 4 times; 4 bush. of plaster were applied soon after it come up to both pieces, and hoed twice.

Stalks topped from Sept. 4th to 13th, and well secured; harvested from Sept. 25th to Oct. 16th.

Potatoes No. 1, in pasture, perhaps for 20 years; ploughed in Nov. 1854, 6 inches deep; land, 128 rods; harrowed well in the spring; seed, 4 bush., one piece in a hill; hills, 2 by 3 feet, cultivated and hoed once, and once manured. Two bushels of plaster applied before hoeing.

Whole expense, interest, etc., - - - - -	$18 40
100 bush. potatoes at 40 cts, - - - - -	40 00
Left to land,	$21 60

No. 2, a piece of moist, cold land; in all applied 5 loads of coarse manure broad-cast, and ploughed 4 inches deep; then applied 5 loads of earth from a spot where an old house had stood, and harrowed well, and planted 1½ bushels of the Oregon potatoes, May 28th, applied 1 peck of plaster in the hill, hills 2 by 3 feet, 1 piece in a hill. Cultivated and hoed twice; quantity of land, 34 rods.

Whole expense, etc., - - - - - -	$9 50
40 bush. potatoes, - - - - - - - -	16 00
To land,	$6 50

This crop was injured by frost; potatoes no more than three-fourths grown, but a variety we believe free from, under all situations a late potato, requiring a long season and high manuring. I have cultivated them three years.

Remarks.—You will readily see at a glance the crop that pays best, and that will furnish the largest amount of fodder, for manure for succeeding crops. Our estimate of the value of small corn and fodder is lower than it ought to be in comparison to the price of hay, worth from $18 to $20 per ton in town.

We charge nothing for manure in the yard, only the labor of drawing it, being what the land is entitled to. No. 1 and 2 of corn is increased in value for the four succeeding crops perhaps 20 per cent., and probably No. 2 of potatoes. No. 1 of potatoes is not increased in value, but probably will bear a fair crop of corn next season, and then will be stocked with clover and to pasture again. We have charged the different crops one dollar per day board, included labor performed mostly by myself.

EPPING, N. H., December 12, 1855. D. L. HARVEY.

VARIOUS USES OF ARTIFICIAL AND MINERAL MANURES.

AT the suggestion of a subscriber, in our last number, we described the various modes of applying guano to the soil. We propose to extend these suggestions to other mineral and artificial manures.

1. POUDRETTE AND NIGHT SOIL.

Night soil should always be mixed with powdered charcoal, or pulverized peat, or with lime or gypsum, to overcome the odor and retain the gases. It may then be mingled freely in composts, and applied to the soil, scattered broadcast, or in hills, like any other manure. But the concentrated poudrette should not be in contact with the seed in large quantities.

If poudrette is applied in the hills, only a tablespoonful should be placed on a hill, and this not in a pile but scattered, either before or after the seed is dropt. Potatoes will bear a more liberal allowance than corn. For melons, cucumbers, squashes, etc., a large hole should be dug two or three feet in diameter, and poudrette be scattered freely, and thoroughly mingled with the soil, which should be made mellow for a foot or more in depth. The seed may then be placed in a circle around the hole. For cabbages, a handful may be applied to each root. For carrots, beets, etc., the poudrette may be mixed with the seed before it is sown, and both dropt in the earth together. For a crop of oats, rye, etc., twenty or thirty bushels may be spread over an acre, and harrowed in before the grain is sown; or it may be ploughed in, or it may be broadcast afterwards as on grass lands. On grass land it may be scattered broadcast, at the rate of thirty bushels per acre, more or less, and this should be done just before a shower. It may applied to grape vines, trees, etc., by scattering a half peck or more over the roots, and covering and mixing it by the spade, etc.

It is better to use poudrette in connection with farm-yard manure or guano, rather than alone. It "stimulates" for a time very highly, but is not so durable in its effects. Hence it is better for the land, to use it in connection with other manures. It may also produce an abundance of leaf and stem, and afterwards fail to secure fruit and grain.

Night soil requires the same management as poudrette; though exposure to a bad odor may sometimes require more caution in the application of it.

GYPSUM OR PLASTER OF PARIS.

This is more generally applied in the hill, for hilled crops. A tablespoonful or so may be placed in a hill. Prof. Johnston says that if it be mingled with common salt, when applied to clover, beans, peas, etc., it will be much more efficient; but we have not seen it so applied. The salt may be one half the weight of the plaster. Gypsum may be dissolved in water; 50 gallons of water will dissolve a pound, and applied in this form to any crop. Gypsum is however more generally efficient on clover and other grasses, peas, beans, etc., than it is with grains, turnips, or other green crops. It is also more useful on light and dry soils than on clay. It is well, also, to alternate the use of this with animal manures. When sown with grain, or a bulk equal to that of the grain, 200 or 300 pounds to the acre may be thus applied. For corn, potatoes, peas and beans, etc., in the hills and to grass lands, five or six bushels per acre may be properly used.

Gypsum is very useful also if mixed with barn-yard manure, whether it be daily or frequently sprinkled over it, or mixed with it when it is turned over, preparatory to using it. It is also useful when sprinkled over the floors of stables, in fixing gasses, as well as by its own action as a fertilizer. This is perhaps as important as any other form of applying it.

Fish, Flesh, and other matters like these, consisting of very concentrated manures, should be mixed with six or eight times their weight of earth or other compost. A liberal proportion of powdered charcoal is advantageous. Cover a dead animal with powdered peat, muck, leaf mould, and the like, and the result is a very efficient manure. Dry gypsum will also be very useful in confining the gases and preventing a bad odor. Charcoal is of equal value. A little quicklime is also useful. Fish should never be spread over the ground and left uncovered. They produce evils of various kinds, and their fertilizing properties are wasted. They should be placed in layers, and covered with dry mould or muck, with charcoal or peat, if at hand, and thus alternating, be suffered to remain till thoroughly decomposed. It may then be used broadcast or in hills.

In clay soils, fish may be ploughed under. The clay has power to retain the gaseous elements. From six to ten thousand of the smaller fish, like Menhaden, may be ploughed into an acre. Sometimes, on such soils, entire fish are applied in the hill. One fish, with a little wood ashes, or yard manure, or two or three fishes applied alone, may be buried in a hill of corn.

The effects of fish when used alone are but temporary. Their influence is more permanent when used in connection with charcoal, ashes, guano, gypsum, etc.

EXHIBITION AT PARIS—PREMIUMS AWARDED TO AMERICANS.

This great exhibition has been closed. The public ceremonies were had on the 15th of November. The Emperor made a speech, which appears from the reports of it to have been chiefly political.

After the entry of the Emperor and his chief officers, ministers of State, the imperial household, the imperial commission, etc., an enormous orchestra seated in the gallery over the throne, composed of 1,300 persons, under the direction of Berlioz, then executed *L'Impériale*, a cantata composed for the circumstance by Berloiz. After its conclusion, the Prince Napoleon stepped in front of the throne, and read a long address to their Majesties, which was heard by no one but those in the immediate neighborhood. Upon its conclusion, the Emperor arose, and in a loud and clear voice made an address which was heard in the remotest part of the immense building.

After the speech, those persons who had drawn the Grand Medal of Honor passed before the Emperor at the foot of the throne and received from his hands their medal. A majority of them also received the decoration of the Legion of Honor.

After the conclusion of this part of the ceremony, their Majesties and suits came down from the platform and passed around the large aisle in the building, where the objects which had gained the grand medal had been placed.

The United States has drawn a fair proportion of medals.

Three Americans were decorated with the Legion of Honor at the Prince Napoleon's, viz.: Mr. Valentine, Chairman of the American Commission; Mr. Marshall Woods, of Rhode Island, Juryman on Fine Arts Department, and Mr. Vattemare, (for services in American Department.)

COMPLETE LIST OF RECOMPENSES AWARDED TO AMERICANS AT THE GREAT EXHIBITION.

Decorations.

W. J. Valentine, Chairman of the American Commission.
Marshall Woods, Juryman on Fine Arts.
Alexander Vattemare, for services in American department.

Grand Medal of Honor, (gold.)

Charles Goodyear, vulcanized India rubber.
C. H. McCormick, reaper.

Medal of Honor, (gold.)

Bache & Kline.
Lieut. Maury.
J. A. Pitts, Buffalo, threshing-machine.

Medals of the First Class, (silver.)

Allston.
Mauny.
Tousley & Read.
Manchester Print Works.
Thomas Blachard, timber-bending process.
Samuel Colt, revolvers.
Merriam, Brewer & Co., cotton goods, Boston.
W. Seabrook, cotton goods.
A. W. Ladd & Co., Boston, square piano.
A. Mirmont, New-York, musical instruments.
Singer & Co., New-York, sewing machines.
D. King, Albany, model of river steamer.
United States Navy Department, for collection of ship models, etc.
M. Richmond, Boston, iron-cutting machine.
M. Stewart, New-York, ———.
Hamilton, cotton and wool fabrics.

Medal of Second Class, (bronze.)

J. Bart.
Webb.
Wright.
Ira Jewell, foreman of Mr. Wright.

Wethered & Brothers.
Grover, Baker & Co.
Garside.
Gurney.
Rawdon, Wright & Co.
F. Toppan & Carpenter.
Boisselerie Americaine.
R. C. Elliott, South Carolina, Sea Island cotton.
H. S. King, South Carolina, Sea Island cotton.
M. Mickell, South Carolina, Sea Island cotton.
G. Gemunder, New-York, violins.
T. Seymour, New-York, sewing-machine.
Wheeler & Wilson, New-York, sewing-machine.
Fowler & Preterree, Paris, dentistry.
Ringuet-Leprince, Marcoite & Co., New-York, sculptured walnut dressing-case.
Hiram Tucker, Boston, artificial marble.
Z. Thompson, Vermont.
J. Harraday, New-York, clothes-cutting machine.
Seaborn & Carter.
Wolle Brothers, Bethlehem, Pa., machine for manufacturing paper sacs.

Honorable Mention.

Valentine & Wheelock.
Vergennes Scales Manufacturing Company
Kline.
Engel.
Hollingsworth.
G. T. King.
Lindworth.
Delpit, Madame.
Richard & Co.
McLees.
Meade Brothers.
Hotchkiss.
Jannecy.
N. W. Kingsley, New-York, artificial teeth.
Nicoll.
J. Ross, New-York, artificial teeth.
Russell.
Schortose.
Jones, White & McCurdy, artificial teeth.
N. Day.
T. Maskell, La., sliding keel for ships.
Nathan Thompson, Jr., New-York, life-preserving seat and safety boat.
L. Lacharme, California, specimens of California gold.
Pioche, Bayerque & Co., California gold specimens.
Backus & Peaslee, New-York, rag-washing machines.
B. Moore.
Th. Hodgkin.
Schmitz & Jaroseon, New-York, machine for printing cloth.
Nelson Barlow, New-York, planing machine.
Storms Brothers, New-York, preparation and conservation of alimentary substances.

FINE ARTS DEPARTMENT—PAINTING.

Medal of the Second Class.

G. P. A. Healy, Boston, portrait.

Medal of the Third Class.

T. P. Rossiter, New-York, pictures.
Mr. May, New-York, pictures.

KEEPING TURNIPS, ETC., IN WINTER.

The way I keep my turnips, parsnips, and vegetable oysters in the winter, so as to have them available for use at any time, and to preserve their good qualities from frost or exposure to the atmosphere, may be new to most of the readers of your excellent paper—hence this communication.

As late in the fall as is prudent to wait, I take my *old barrel*, and put a good layer of dry leaves on the bottom, then put a layer of turnips or parsnips, then another course of leaves, and so alternating, being careful to put in a good supply of leaves between the roots and the barrel, and also between each course of vegetables.

Turnips properly put up in this way will not be *corky*, will keep good all winter, and can be got at any time. Parsnips put up in this manner will be better in the winter and in the spring than if left in the ground as is the common practice; besides, you are not obliged to wait till the frost is out of the ground before you can have a mess. Your barrel of turnips should be kept in as cool a place as possible and still avoid freezing, as they grow unless kept dry and cool. The wind will blow the leaves into heaps soon, when they should be gathered ready for use. Will some one put up sweet potatoes this way and report the result?—*Moore's Rural New-Yorker.*

A NEW ESCULENT IN THIS COUNTRY.

In May last I received from the Agricultural Division of the Patent Office, the "Chufas or Earth Almonds," known to botanists under the name of "Cyperus Esculentus," with the following notices of the same:

It grows spontaneously in the light, humid soils of Spain, and is cultivated in Germany and the south of France. If planted in May or June they are ready to be harvested in October. They resemble in taste a delicious chestnut or cocoanut, and like them may be eaten raw or cooked. They are chiefly employed for making an orgeat, (orchata de chufus) a delightful, refreshing drink, much used in Spain, Cuba, and other hot climates where it is known. When mashed to a flour, which is white, sweet, and very agreeable to the taste, it imparts to water the richness and color of milk. At Almacero and Albargo considerable attention is paid to the cultivation of this plant, eight acres of land yielding a profit of $3,500 in five months.

I planted the tubers or bulbs according to directions accompanying them. They are now growing vigorously, and very easily cultivated, requiring no special care, and I have no doubt will be as productive as any vegetable grown in this climate. I hope to have seed enough to plant some two acres of ground next season. It is worthy of cultivation as an ornamental plant.—J. V. McCullough, *Horticulturist.*

INDUSTRIAL STATISTICS.

Birmingham, Ct.—Birmingham Iron Foundry. S. Bassett, President. Employ 50 hands on average; make castings, turbine wheels, trip-hammers, etc. Henry Whipple and Moses Hawkins, foremen.

Tack Factory of Shelton Co. E. N. Shelton, President. Use 42 machines; make tacks of all kinds and sizes. N. H. Sherman, foreman. Also make bolts and nuts, employing 13 hands in this department.

Plane Factory of L. De Forest. Turn out $20,000 worth goods annually; make bench and moulding planes.

Turning Factory of Geo. W. Shelton. Employ 30 hands on average; turn out $30,000 worth yearly; do plain and fancy wood turning. Messrs. Shelton & Osborn, Agents for "Cast Cast-steel Company."

Ansonia, Ct.—Farrel Foundry Co., F. Farrell, Agent. Employ 50 hands on average; turn out $80,000 worth yearly; do work for rolling and rubber and paper mills; foundry connected. M. P. Wilson and E. Butterworth foremen. Make S. & S. M. Colburn's Double Giant Mill.

Wire Factory of Wallace & Sons. Make brass and copper wire, rolled, sheet and plated brass, tubing, kettles, nuts, jack chains, hooks and eyes, etc., etc.; turn out $150,000 yearly. J. S. Riggs, refiner.

Ansonia Brass and Battery Co. J. H. Bartholomew, Agent; J. R. Light, C. D. Allen, Wm. Smith, R. Matthews, and others, foremen; T. E. Miller, refiner. Employ 70 men on an average; do brass and copper work, tubing, stamping, clock movements, etc., etc.

Ansonia Copper Mill. Peter Phelps, Agent; Thomas Whitney, super.; David Coles, foreman; Conrad Struckman, refiner. Have 9 sets rollers; employ 45 hands; make sheet and bolt copper.

Novelty Company. L. Fenn, Agent. Make Fenn's superior axes; turn out 170 daily; business increasing; also do fancy and plain turning in wood.

Cotton Mill of Sewoss & Schenck. Has 18 cards of 36 inches; 26 looms; make seamless bags.

Factory of Frary & Co. Employ 30 hands; make Wakefield's patent corn-planters.

Factory of C. W. Fisk & Co. Employ 8 men, and machinery; make melodeons of superior quality. Sold by John March, Philadelphia, Penn.

Seymour, Ct.—Humphreyville Manufacturing Co. Reymond French, Agent; Isaac P. Bottsford, Peter Worth, and others, foremen. Employ 250 hands on average; make augers, plane irons, wrought-iron car work, etc., etc.; machine shop attached has 5 lathes, and other tools in proportion.

New-Haven Copper Co. Geo. De Forest, President; Thomas James, Jr., super. Works have 10 pair rolls; make bolts, sheets, pipes, flues, and white metal.

Rubber Factory of A. G. Day & Co. Work under Goodyear's patent; employ 50 hands; make pencil-cases, letter-folders, etc. Thomas Sault, superintendent of machinery.

Auger Shop of the Upson Manufacturing Co. Hiram Upson, President; H. A. Radford, Agent. Employ 20 hands on average; have 2 trip hammers, 4 fires, etc.; make augers, bitts, etc.

Beacon Dam, Ct.—Beacon Dam Co. Geo. Goodyear, Agent; Elijah Pierce, foreman. Make rubber flasks, casters, tape measures, cork-screws, syringes, pumps, etc.

Novelty Rubber Co. George Langdon, Agent. Employ 40 hands on average; make canes, buttons, etc., of rubber.

Naugatuck, Ct.—Union Rubber Co. J. T. Trotter, Agent. Employ 75 hands; make rubber clothing.

Glove Co. Geo. C. King, Agent. Employ 12 hands; make gloves, mitts, finger cots, shields, etc.

West-Winsted, Ct.—Winsted Foundry and Machine Co. Shop has 8 lathes, and other tools in proportion; foundry has A. A. Perkins, foreman; do job work.

Scythe Factory of Wheelock & Wilder, successors to W. Thayer & Co. Have 3 hammers, 2 stones. Turn out 2000 dozen annually.

Empire Knife Co. Charles Thompson, Manager. Employ 45 hands; make pocket cutlery.

American Hoe Co. Louis R. Boyd, Agent. Make cast-steel hoes for planters and cotton and sugar growers; turn out 10,000 doz. annually.

Forge Shop of Timothy Hulbert has 2 fires and 1 scrap furnace; 3 trip hammers; work scraps; do largest kind of work.

Winsted Auger Co. Charles Spencer, Secretary. Employ 30 hands; use machinery; make augers and bitts.

Beardsley Scythe Co. Francis Brown, Manager. Turn out 5000 doz. annually; make scythes, hay, straw and corn knives.

East Winsted, Ct.—Factory of A. G. Gormans & Co. Employ 20 hands; use machinery; make jewelry.

Winsted Manufacturing Co. John Camp, Agent. Make scythes; turn out 6000 doz. annually.

Clock Shop of Wm. L. Gilbert & Co. Make clock cases and movements; turn out 20,000 annually.

Cook Axel Co. C. Cook, Secretary. Employ 20 hands.

Wolcottville, Ct.—Stockinett Mill. A. G. Brady, Agent. Have 2 sets machinery; make shirts, drawers; employ 100 hands in all, including sewess. Thomas Hollingsworth, foreman.

Union Manufacturing Co. F. N. Holley, Agent; W. R. Slade, Superintendent. 1 mill woolen; have 4 sets machinery; make black cassimeres and doeskins.

Wolcottville Brass Co. Willis Curtis, foreman. Have 6 sets rollers; casting shop and stamping; make brass kettles, rolled and sheet brass, plates and tubes.

Plymouth Hollow, Ct.—American Knife Co. G. B. Pierpont, President.

Employ 80 hands on average; make superior pocket cutlery of all kinds and prices.

Terry's Mill, woolen. H. Terry, owner; John Cady and Ferris A. Castle, foremen. Has 4 sets machinery; make black doeskins.

Thomas' Cotton Mill. Seth Thomas, Agent. Nathan A. Daniels and others, foremen. Have 20 cards of 24 inches; 61 looms; cloth 36 inches: 52 by 52: yarn 18.

BROADBROOK, CT.—Broadbrook Co. 1 mill, woolen; Nelson Palmer, Agent; Wm. Hancock, Superintendent; N. P. Adams, Salmon North, H. W. Phillips, Sylvester Williams, John Wolf, and others, foremen. Mill has 12 sets machinery; 72 looms—10 more to be added; make fancy cassimeres.

WAREHOUSE POINT, CONN.—Warehouse Point Manufacturing Co. 1 mill, woolen; N. K. Benton, President; B. Sexton, Treasurer; A. Dennison, Superintendent; F. W. Carpenter, John B. Orcutt, F. C. Whittaker and others, foremen. Mill has 7 sets cards, 4820 spindles, 52 looms; make fancy cassimeres.

WINDSOR LOCKS, CONN.—Thread Mill of A. Wilmarth. Has 320 spindles; make thread of all colors and Nos.; make superior thread for whips and to use in sewing-machines.

Wire Factory of Royal Prouty. Turn out wire from 0 to 36 Nos., for cards, reeds, stone, brooms, etc.; make satin, silk and cotton wire, all colors, for bonnets.

Connecticut River Mill, cotton. L. M. Pinkham, Agent. Mill has 16 cards, 3000 spindles; cloth is 28 inches wide, 68 by 72, of yarn Nos. 32 and 36.

Stockinett Mill. Alex. Downie, Superintendent. Has 2 sets cards, 12 knitting machines; make hose and stocking yarn.

PITTSFIELD, MASS.—Pomroy's Sons' Mills, 2 woolen. L. Pomroy's Sons, agents and owners. Broadcloth mill has J. Daly, James Daly and others, foremen. Mill has 4 sets cards, 22 broad looms; make cotton warp broadcloths. Satinet mill has 5 sets, 36 looms; make cassimeres, cotton warps for printing. C. Hemenway, superintendent; Joseph Daly, Jr., Wm. Daly and others, foremen.

Pittsfield Woolen Co. R. Pomroy, Treasurer; W. F. Bacon, Secretary; S. M. Caldwell, Charles Harden and others, foremen. Mill has 8 sets machinery, 36 broad looms; make cotten warp broad-cloths; warps purchased.

Woolen Mill of S. M. & C. Russell. Mill has 1 set machinery, 10 looms; make satinets; warps purchased; Tillotson Clarkson, foreman. Wadding mill attached has 7 cards; Cornelius Warner, superintendent.

Pontoosac Woolen Co. Geo. Campbell, Agent; Thaddeus Clapp, Jr., manager; Thad. Clapp 3d, superintendent; Amos Armitage, Timothy Cotton, James H. Wylie and others, foremen. Mill has 6 sets machinery, 40 broad looms; make cotton warp broad-cloths; warps purchased.

Cotton Mill of E. & J. L. Peck; has 30 cards; make satinet warps from 1800 to 2000 ends of No. 18 yarn.

GREAT BARRINGTON, MASS.—Berkshire Woolen Co. A. C. Russell, Agent; Geo. W. Fuller and others, foremen. Mill has 8 sets cards, 82 looms; make plain union cassimeres; cotton warps, which are purchased.

HOUSATONIC, MASS.—Monument Mills. J. M. Seely, Agent. Mill has 16 cards, 1656 spindles, 2 dressers; make satinet warps, No. 18 yarn, from 1500 to 1800 ends. Wm. Black and others, foremen.

GLENDALE, MASS.—Woolen Mill of J. Z. & C. Goodrich; John T. Fenn, superintendent; John A. Lynd, and others, foremen. Mill has 6 sets machinery, 1820 spindles, 60 looms; make union cotton warp cassimeres for printing. Machinery in part is operated night as well as day. Gas used for lighting; made on the premises.

LEE, MASS.—Center St. Machine Shop. J. A. Morey, owner. Has 5 lathes, and other tools in proportion; make paper-mill machinery, and do job work.

Saxony Mills. Platner & Smith, owners; Jonas Holmes, superintendent; cassimere mill has John McKenna, Ephraim French, James Mitchell and others, foremen; 7 sets machinery; make fancy cassimeres. Satinet mill has Aurora, Moree and Castle, foremen; 3 sets machinery, 36 looms; make satinets; warps purchased.

Cotton Mill of Beach & Royce, has George H. Holmes, foreman; 12 cards, 24 inches; 18 looms; make seamless bags.

Machine Shop of Tanner & Perkins; has 13 lathes, and other tools in proportion; make paper-mill machinery, and do job work; *foundry* attached has 5 hands on average.

SOUTH ADAMS, MASS.—Pollock's Mill, cotton. Wm. *Pollock*, owner; A. R. Lovell, superintendent. Mill has 32 cards, 3886 spindles; make satinet warps.

Woolen Mill of B. F. Phillips & Co., owners and superintendents; Wm. Brown, John M. Morin and others, foremen. Mill has 3 sets machinery; make satinets for printing; warps purchased.

Brown Mill, cotton. Plunkett & Brown, owners. Mill has 87 looms; cloth 28, 60 by 56; of yarn No. 28.

Maple Grove Mill, cotton. R. Leonard & Co., Agents; Curtis Rider, superintendent; Charles Tower and D. M. Randall, foremen. Mill has 8 cards, 30 inches; 1600 spindles, 48 looms; make prints, 28 inches wide, 48 by 52; yarn 28.

Adams' Mill, cotton. Adams, Brothers & Co, Agents; Myron Trow, foreman. Mill has 9 cards of 36 inches, 1380 spindles, 40 looms; cloth is 37 inches, 44 by 44; of yarn 16.

Arnold Mill, cotton. S. L. Arnold & Co., owners. Mill has S. W. Howland, superintendent; S. A. Hunt, foreman. 8 cards of 36, 1860 spindles, 56 looms; cloth 28, 56 by 60; yarn 29.

Greylock Paper Mill. L. L. Brown & Co. Has 6 engines; make nice plat papers.

Plunkett Mill, cotton. Plunkett & Wheeler, Agents; Alonzo Wright and others, foremen. Mill has 16 cards of 18 inches; 1808 spindles, 60 looms cloth 28, yarn 27.

CHATHAM FOUR CORNERS, N.Y.—Repair Shop of Harlem and Troy Railroad. John J. Ferris, master mechanic. For the above road repairs are made in iron and wood shops; works are enlarging.

CLOCK STATISTICS.

WEST MERIDEN, CT.—Factory of Bradly & Hubbard, owners; turn out 100 superior clocks daily. Movements purchased. Nathan L. Bradly, Agent.

MERIDEN, CT.—Factory of F. Rodolph; turn out 100 clocks daily. Movements purchased—sold to Coe & Co., Boston and New-York.

STORM'S CLOUD ENGINE.

In our last number, we mentioned this as among the valuable inventions exhibited in the Fair of the American Institute. We believe the invention worthy of more extended notice, and that machinists will find something in it to lead them to a careful study of its theory.

Probably we do not make sufficient account, as yet, in the investigation of steam, as a motive power, of the agency of electricity. It may be excited where we have not yet discovered it, and, on the other hand, we may not always avail ourselves to the greatest extent of its tremendous power. This fluid may be within our reach when we little suspect it. A trifling change in the arrangements of an engine might bring it into play, with almost resistless force, where its influence is scarcely known.

The doctrine of *latent heat* is so exceedingly mystical, the nature of it, or rather its state, when latent, is so utterly beyond our conception, that it would not be strange if future experiments should develop some connection, that we have not yet dreamed of, between the action of electricity and the development of latent caloric. Mr. Storm, however, is perhaps too explicit, with our present knowledge of the subject, when he says, "'Latent heat' of steam or of any other artificial vapor generated by heat, in a close vessel, is not such strictly, but would be more properly expressed as combined electricity, heat and electricity being, under certain conditions, *convertible* and different phenomena of the same cause." But we prefer that he should give his own explanations in relation to the power of steam and of his engine. He says:

"Steam is an *artificial* and nearly invisible vapor, never existing outside of the closed space in which it is generated.

"An atom of steam is nearly a solid spheroid (if the term solid may be applied to a *liquid* atom,) while the particles of all natural vapors or clouds are 'vesicular' or hollow. Steam, in escaping from a boiler into the atmosphere, instantly assumes this latter form, and thereby becomes visible—steam itself being always transparent like air. The atoms of steam being thus rendered hollow, vesicular, or *inflated*, necessarily occupy more space and possess a higher elasticity. And while in ordinary steam all the '*latent*' portion of its heat, amounting to about three-fourths of all expended, has to be invested in the water before it has *any* elastic power at all—and where—as this 'latent heat' passes through and away from the engine with the escape steam, without undergoing any change of condition whatever, or being in any manner brought into action—it is consequently wasted. And, as it is well known that '*vesicular*' vapors have only a trifling amount of 'latent heat' for a given amount of elasticity and volume as compared with other vapors, and that all other vapors whatever, have a total power just in the proportion to the amount of their 'latent' heat; it is therefore evident, that by converting such artificial vapor or steam from any liquid into the vesicular form, or natural steam, such as constitutes the *clouds* of the atmosphere, and which is readily effected by allowing them to combine, by the natural affinity which exists, with air or other permanent gaseous body, thus imitating nature, an immensely less quantity of caloric must be consumed.

"CLOUD AS A MOTIVE AGENT.

"The following elucidation of the cause of the great expansion resulting from the admixture, in any closed space of air and steam, may be more satisfactory to exclusively practical minds, because involving no abstruse scientific reasoning.

"That the heat or *temperature* of the steam has little to do with the expansion resulting from the mixture of steam and air, will at once be evident from the well-established fact, that it requires about 540 degrees Fahrenheit to double the volume of a given quantity of air at the ordinary atmospheric temperature (say 60 degrees,) as a starting point.—See 'Effects of heat on the elasticity of the gases,' article, Pneumatic—*Brande's Encyclopedia*, page 947. This temperature, which in steam would give the uncontrollable pressure of about 1000 lbs. per single square inch, or about 65 atmospheres, merely doubles the tension of a *confined* measure of air, about *twice* this quantity of caloric being necessary to supply its expansion to a double *volume*.

"But the same air, if allowed to form vesicular vapor by contact with heated water (or steam,) will be double in volume, starting from the same point, (60 degrees,) by the time it has reached 192 degrees, or 20 degrees less than the boiling point of water in an open kettle—or less than the formation of steam of a single atmosphere of pressure, and incapable of any force till the atmosphere is removed. And to form even this weak *steam* five and a half fold more time and five and a half more fuel must be consumed than that required to expand the air to double the *volume* by the vesicular process just mentioned; no "latent heat having been invested in that case. The corresponding increase of *tension* at the same time, instead of being merely double, is over 30 fold!

"These facts are matters of standard record, and were brought to light by efforts to ascertain why a very trifling leakage of air into the condenser of the steam-engine created so much back tension as to almost annul the vacuum.—See *Dalton's experiments*, *Philosophical Transactions*, and *Tredgold on the Steam-engine* (*marine*,) page 78.

"The steam world is challenged to take its choice between the soundness and value of the cloud principle (vesicular vapor *versus* spheroidal vapor, or steam,) or the repudiation of its own highest authorities.

"That the agent of power here brought into action is electricity, is no new discovery; for it is known to all men versed in the physical sciences, that steam, produced by heat, from whatever source, when coming in contact with the air, organizes at once in the form of vesicular vapor or cloud—this hallow or vesicular form, by a law of optics, rendering it then at once visible. It is equally known, that all such vesicles are electrised and mutually repellant.—See *Saussure*, *Thompson on Heat*, *etc.* *My* discovery is, that the *source* of this electricity, and of that of all clouds, is the *so-called* 'latent heat' of the primarily formed vapor or steam, the conversion of sensible heat, from whatever source, sun or fire, into this 'latent' form, being, in fact, its conversion into 'latent' or *combined electricity*, which is afterwards set free when the change to the vesicular state takes place. That immense torrents of electricity may be developed from steam (whatever be the accepted reason *why*,) it is only necessary to refer as proof to experiments wherein, from a boilder of only a few horses power, flashes of lightning nearly two feet long and too fast to count, are evolved from steam escaping into the atmosphere under a moderate pressure of about 60 lbs. to the inch.—See *Noad's Electricity*, page 7.

"Now, if the tension and volume of the air becomes so great by taking up in vesicular suspension the moderate amount of water it can take up under the moderate pressures and temperatures mention in Tredgold's table hereinbefore cited, what must that result be when the water is heated to a point corresponding to 70 lbs. guage pressure, in which case it (the air) would take up over 30 times as much, every 27 degrees, doubling its capacity in this respect?—See *Brocklesby's Elements of Meteorology*, page 32, where tables are given, or any similar work.

"And again, what if this water, previously to being so taken up and combined with the air, had been converted into *steam* at that same *temperature* and pressure (70 lbs.,) and which would then be invested with that *fountain of all* expansion, the so-called 'latent heat,' which, as the air and steam combined by their own rapid affinity into the vesicular or cloud form, would be set free (not as heat, as the thermometer proves,) but as free electricity of low tension, and so more easily retained by the vesicles, but in great *quantity*, and productive of a correspondingly great volume and elastic power. In a single acre of fog or vesicular vapor there is, although unfelt, sufficient electricity to kill, if concentrated, every animal that might be gathered within that acre.—See *Faraday's Experimental Researches in Electricity*.

"This, simply, be its properties what they may, is artificial cloud, and the agent by which the 'Cloud-engine' is actuated and from which it derives its name—and to the scientific mind, with these universally established data arranged before it—it will be clear that the phenomenon developed by the Cloud-engine involves neither wonder nor mystery, but, on the contrary, has thus far only made a modest *approach* towards just and soundly founded expectations."

In accordance with this theory, Mr. Storm introduces a portion of air, by means of a forcing-pump, into his cylinder, which combines with the steam and produces the remarkable effects described in the experiments of Mr. Allen and other engineers.

CARE OF CHINA AND GLASS.

The most important thing to do is to "season" either glass or China to sudden change of temperature, so that it will remain sound after exposure to sudden heat and cold. Now, this is best done by placing the articles in cold water, which must gradually be brought to the boiling point, and then allowed to cool very slowly, taking a whole day or more to do it. The commoner the materials the more care in this respect is required. The very best glass and China is always well seasoned, "annealed," as the manufacturers say, before it is sold. If the wares are properly seasoned in this way, they may be "washed up" in boiling water without fear of fracture, except to frosty weather, when, even with best annealed wares, care must be taken not to place them suddenly in too hot water. All China that has any gilding upon it must on no account be rubbed with a cloth of any kind, but merely rinsed, first in hot, and afterwards in cold water, and then left to drain till dry. If the gilding is very dull, and requires polishing, it may now and then be rubbed with a soft wash-leather and a little dry whiting; but, remember, this operation must not be repeated more than once a year, otherwise the gold will most certainly be rubbed off, and the China spoilt. When the plates, etc., are put away in the China closet, a piece of paper should be placed between each to prevent scratches. Whenever they "clatter," the glaze or painting is sustaining some injury, as the bottom of all ware has its particles of sand adhering to it, picked up from the oven where it was glazed. The China closet should be in a dry situation, as a damp closet will soon tarnish the gilding of the best crockery.

In a common dinner service it is a great evil to make the plates "too hot," as it invariably cracks the glaze on the surface, if not the plate itself. We all know the result—it comes apart; "nobody broke it," "it was cracked before," or "cracked a long time ago." The fact is, that when the glaze is injured, every time the "things" are washed the water goes to the interior, swells the porous clay, and makes the whole fabric rotten. In this condition they will absorb grease; and being made too hot again, the grease makes the dishes brown and discolored. If an old, ill-used dish be made very hot indeed, a teaspoonful of fat will be seen to exude from the minute fissures upon its surface. The latter remarks apply more particularly to common wares.

In a general way, warm water and a soft cloth is all that is required to keep glass in a good condition; but water bottles and the decanters, in order to keep them bright, must be rinsed out with a little muriatic acid, which is the only substance which will remove the fur which collects in them; and this acid is far better than ashes, sand, or shot; for the ashes and sand scratch the glass, and if any shot is left in by accident, the lead is poisonous.

Richly cut glass must be cleaned and polished with a brush like plate, occasionally rubbed with chalk; by this means the luster and brilliancy are preserved.—*London paper.*

STEAM STAGE COMPANY.

Mr. Wm. Webster, of Morissania, inventor and patentee of the ingenuous tube-bending machine exhibited at the Crystal Palace, has acquired a prospective interest in Mr. J. K. Fisher's improved steam carriage; and has issued a prospectus for a company, to be called *the New-York and Westchester Steam Stage Co.*, to run from Fordham to the City Hall. If the carriages work as is expected, thirty or more will be run.

We have carefully examined this subject, and are satisfied that it will prove quite practical. On this particular route, however, it will have a railway to contend with, and therefore may not realize the profit which would attend it if opposed only by horse power, for the whole distance; still, as a third of the railway work is done by horses, we have hope of its being able to compete with some advantage.

If railcars could always have full loads, the immense advantage of the track would place them above the competition of common roads, worked by the same power. But on an average, as shown by the report of the State engineer, they carry a dead weight of more than 3000 lbs. per passenger. Steam stages, with the average loads that may be expected, will not have more than 400 lbs. dead weight, or 550 lbs. total weight per passenger;—a difference which, of itself, will half balance the advantage of rails. Add that the wheels will be more than twice the diameter of car wheels, and therefore have less than half the resistance, (for the same road,) we think they have a fair chance on this route.

The New-York business men who live on that line have, as we understand the case, a strong collateral motive to sustain this enterprise, even though it should not pay a large per centage. The railway does not give them satisfaction, but aims to make them pay for the losses sustained on the long line of this road, and for the bad management of it. They have been, and are every season liable to be, required to pay more and more for commutation, and have less and less accommodation, unless they can start an efficient opposition—an opposition that can rival the railway in speed. When machinery of this kind was in its infancy, it was deemed "absolutely a mechanical impossibility to suspend a steam carriage on easy springs." This difficulty is entirely overcome by the improvements of Mr. Fisher.

We have taken no little pains to inform ourselves on this subject, and we do not hesitate to assert our conviction that it is feasible to operate steam carriages successfully, on many routes, and that this or any other company who shall undertake and carry on such an enterprise in an efficient manner, with only a moderate capital, will be successful.

VERMONT VERD ANTIQUE.

We are happy to give space to the subscriber of the following letter to reply to our comments on this new building stone. It should have appeared in the December number, but was accidentally omitted.

We have no hesitation in attaching to the statements of our friend all the importance that the name of one of thorough business talent and unquestioned and unquestionable integrity can properly claim. We may be proved to be in error. Stranger things have happened. The future will settle the question.—Ed. P. L. & A.

Boston, Oct. 13, 1855.

Gentlemen:—With this I hand you a pamphlet issued by our Verd Antique Marble Co., to the perusal of which I ask your attention. And when you are in this city, I beg you would step into our office, No. 32 City Exchange, and see what you have written about on page 213 of your October No. of *The Plough, the Loom, and the Anvil.*

All that is known of this beautiful material is set forth in the pamphlet alluded to; and the reasons for saying what has been said are drawn from the certificates of the eminently scientific men therein copied.

The quantity of *Lime* in the material, you will notice is very small, its component parts being Silica and Magnesia, which *do not* fuse under an acid.

The pure white lines running through it in every conceivable direction *is not Lime*, but a mineral somewhat new to geologists and chemists, the name of which is not definitely fixed. Dr. Hayes, one of our State assayers, is now thoroughly testing this white material for the purpose of more fully satisfying himself what it really is.

With reference to its being impervious to acids, I would say, that the piece or spot is yet to be found which will show the slightest blemish under the application of the strongest acids. Dr. Jackson's *fire* test is also corroborated as the quarrying deepens in the ledge. Those who do not believe it can test it for themselves.

Our orders from the Capitol at Washington are nearly completed. The intention of Capt. Meiggs is to ornament *inside* and not outside of the building, which, I scarcely think, you would risk your reputation in denouncing as in bad taste at the present day.

A block 20 feet long, and of dimensions otherwise equal to 1200 cubic feet, has just been removed from its bed, and is now being cut up into columns for the Capitol.

If from time to time you wish for further items touching this newly discovered interest, I shall be most happy to communicate them. Meanwhile remaining your friend and ob'd't servant,

WM. S. SAMPSON,
Corner of Broad and State Sts.

RUBBER CLEANING.

MUCH of the rubber coming to our market is exceeding filthy. Such is specially the case with the article which reaches us from the countries of southern Asia, where the gum is produced in largest quantities, and when the production is in the localities of the inhabitants. Heretofore, the purest and most valued article has come to us from Peru, whither it is brought from the interior of the country by persons who seek that interior for the sole purpose of gathering the gum. Wherever found, much of it is impure, and is mixed with particles of sand and with bark. It exudes as a milky substance from the trees, and hardens after exuding, so that a large per cent is sometimes found to be a putrid and acrid mass of half-decayed gum, utterly unfit for manufacturing into useful articles. Only Peru rubber of pure quality could be used in making nice articles. This state of things has continued for many years, while efforts were made to discover modes and machinery for cleansing the imperfect mass. Mr. G. Day, late of New-Haven, Ct., now of Seymour, has invented and patented machinery to cleanse rubber; having by many and costly experiments discovered the best manner of doing the work. We have been made acquainted with the rationale of the process of cleansing, and we have minutely examined the newly constructed, and patented, and expensive machinery used in carrying out the process. It is not our purpose to describe the steps of the process nor the apparatus, but only to say, that the labors and researches of Mr. Day have been followed by satisfactory success. The machinery for cleansing is in operation at a factory in Seymour, Ct.; and there the work of cleansing is going rapidly forward. From May 1st to November 1st, 350,000 pounds were cleansed. During the process, the crude conglomerate of gum, sap, sand, bark and acids, costing about eighteen dollars per hundred pounds, was made worth thirty dollars; each pound being almost doubled in value by being made fit for use in the construction of delicate and highly finished goods. Such is the complete success following the experiments and discoveries of Mr. Day in cleansing rubber. As one consequence of his success, the value of crude rubber has greatly increased. Another consequence is, that more articles will be made of rubber and they can be made at less cost. Another result which the discovery will bring about is, that an almost worthless production is made to contribute largely to human happiness and comfort.

Caoutchouc is a purely tropical production. It is sought after on the Amazon far away from the sea-shore and the abodes of men; and it is found and brought to market at great cost of life and money. In this part of the tropical world, the gum seems to be nearly exhausted. In Asiatic regions the gum is found near in districts that are inhabited. But this gum is sent away crude and of greatly inferior quality. A mode of cleansing having been discovered, this easily found and gathered Asiatic gum is made to take the place of that from the Amazon, and an inexhaustible supply for all nations in all times to come is found. The community will be great gainers by the results of Mr. Day's ponderous machinery, and his stringent chemicals, and his monstrous laboratory; and we hope that himself may get cash as well as fame for his fifteen years' patient and expensive experiments.

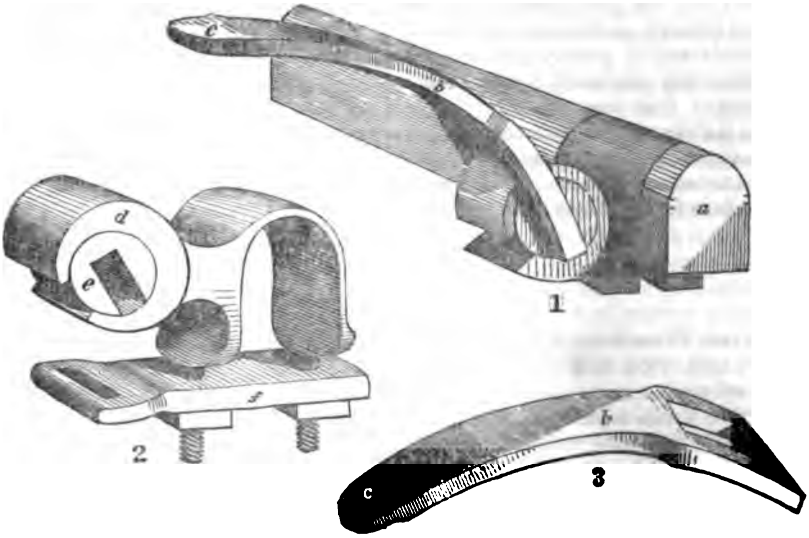
Patent Wash-Tub.—Mr. G. W. Edgecomb, of Lima, Ill., has a patent dated April, 1855, for a wash-tub of peculiar excellence. It is of common size and stands upon its own stool or chair. From the centre of the bottom a spindle is made to rise some 18 or 20 inches perpendicularly. Around the base of the spindle, nailed to the bottom of the tub, are semi-spherical cones, the smaller ends pointing to the base of the spindle, and the larger extending outward. These, made of wood and nailed down, corrugate the bottom of the tub. Above this bottom is a disk, the under side of which is corrugated like the bottom of the tub, making the two corrugated surfaces face each other. In the centre of the disk is a hole, suited to the spindle shooting up from the centre of the bottom. The disk is also furnished with handles applied to its upper surface. The washing is done by putting clothes and water in the tub—putting the disk down upon them, the spindle of the tub entering the hole in the centre of the disk, and then, by means of the handles on the disk, giving it a rotary motion backwards and forwards. The corrugated surface of the disk and bottom do the hand-work of the washing. The cost of the whole aparatus is about *five dollars*. Mr. Ezra Pollard, of Albany, is agent for New-England. It is said that with this machine one person will do as much washing in a given time, as three persons can in the common way.

The Osgood Scale.—The Parker Scale Co., of West Meriden, Ct., of which Mr. H. B. Osgood is the agent, is making scales which have all the essential features of the Fairbank scales with an addition upon which a patent was secured in January, 1852. The patent was taken out in the name of Mr. Osgood, and is used with perfect satisfaction by the company of which he is the acting agent. The patent has reference to an improved mode of making the *lever*, besides which the scales are like those constructed by the Fairbanks.

The Parker Scale Company is making scales of all sizes, from that required to weigh a loaded canal boat or railroad car, down to a letter or a grain of gold.

CARRIAGE SHAFT COUPLING.

BENEDICT'S PATENT.



THE foregoing cut gives various views of a carriage shaft coupling, coming rapidly into use in this country. It is made by Messrs. W. J. CLARK & Co., of Southington Ct., who own the patent, secured in the name of Benedict. The cuts are clear pictures of the invention. Fig. 1 is a view of the coupling attached to a section of the axle, which section is denoted by *a*. Fig. 2 is a coupling with clip as it appears ready to apply to the axle. Fig. 3 is the shaft-iron with eye, which is to be welded at *c* to the strap of iron which lines the under side of the end of each shaft. In Fig. 2 *d* is the barrel in which the tumbler *e* revolves, as marked by the circular line between *d* and *e*. The square slot in the tumbler *e*, in Fig. 2, stands as it usually does when the carriage is in use; and to insert the shaft, it is necessary to turn the tumbler round, so as that the opening corresponds with the opening in the barrel, then raising the shafts to a perpendicular position, raise the eyes of the shaft-irons up into the slots, and bring the top of the shafts forward and down to their proper position, and the coupling is accomplished perfectly.

To remove the shafts is but the work of a moment. It is done by elevating them perpendicularly to the point where they were when inserted. In applying the coupling care should be taken to bend the shaft-iron to a proper curve in the vicinity of *b*, fig. 3, so that the shafts cannot be removed until they are elevated to the highest point without striking the body of the carriage.

The excellencies of this coupling are numerous. It is obviously very safe, as no nut or bolt is used about the coupling to be loosening, as nuts and bolts are apt to do sometimes under dangerous circumstances. It is convesient beyond a parallel, for disconnecting the shafts when desired from the axle. It makes little rattle when worn; and also it is very cheap. Additional information may be obtained by inquiring of the manufacturers. D.

MODEL MILL.

During the last few years some fine mills have been built for the manufacture of woolen goods in New-England, and other fine ones have been in successful operation from ten to twenty years. Among those lately built may be named the Glendale Mill, in Pascoag, R. I., which was erected a year or too since under the personal inspection, and by the special direction of Mr. Lyman Copeland of that place, who has been actively engaged in manufacturing for nearly thirty years; and is well acquainted with the early modes of working, as well as with all the improvements of the present day. This mill is constructed of stone, and it is of sufficient size to accommodate easily and very convenientl[y], eight sets of machinery. It is high enough in stories to give ample room for shafting, pullies, and belting; and it is supplied with windows to give ample light among the machines in common weather. The machinery, from picker to finisher, is made according to the latest and most approved patterns; it having been built and purchased more with reference to perfectness than cheapness. No improvement developed in the past history of woolen manufacturing, is wanting in the mill to make a perfect fabric with the most economy. The foremen, too, in the various departments of sorting, dyeing, carding, spinning, weaving and finishing, are all men in the prime of manhood, having each learned his profession under circumstances and with machinery adapted to give him great skill in labor. Under the superintendence of Mr. Albert B. Copeland, who has been practically engaged in each single department of the whole process of manufacturing from his youth up to manhood, the mill presents a pleasing aspect, and may well be called a model mill. A visitor passing from one room to another, whilst he admires the cleanliness of everything, and the harmony and the symmetry of the whole, cannot fail to feel that he is inspecting an establishment almost without a superior. Other mills may have more ornament, and others still may be larger, and yet others may turn out more strikingly figured goods, yet but few, if any, can be found which combine so many acknowledged modern improvements. The parts by themselves are perfect, and as a whole make a perfect system.

The sample-book is a curiosity in its way. It is so large as to remind the examiner of the Chinese legend, and its pages are adorned with a "thousand and one" samples of cloth made. All ground colors and all fancies of figures, grave and gay, for the lighted-hearted and the sedate, multiform and brilliant as the flowers of spring, are found on those amply clothed pages. Ingenuity and taste will add to this variety still more in the future, for every day some new pattern is invented, and some new sample is fixed on those pages. If any person wishes to see the latest patented or most highly approved machinery, his time and curiosity will not be lost in visiting Glendale Mill, whose agent and superintendent will give him a kind and courteous reception.

COMPANY OF INVENTORS.

We have received several letters in relation to the plan that we presented some two or three months ago for a sort of joint company, to aid inventors without pecuniary means to present before the public their valuable inventions. We invite others, who are disposed to look into this subject, and to assist in devising the details of the plan, to write to us their views at an early day. We will communicate to such the details proposed, or suggested rather, and invite their coöperation in perfecting the system. They may thus do themselves and others a good service. We have reason to believe that the American Institute, if desired, would be both able and willing to grant facilities to such a company of great service to the members. Now is a favorable time for action.

PORTER'S STONE DRESSING MACHINE.

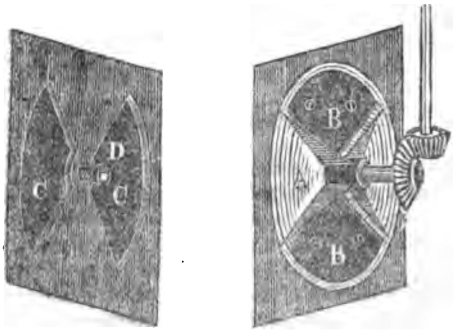
This is a valuable invention. We are always pleased to see the work which is accomplished by machines performed in the same manner as when done by hand. It is this peculiarity which commends to our judgment the sewing machine by Robinson. It does not sew so rapidly as some others, only doing the work of six or eight people; but it takes the same stitches which are made by the living seamstress, and just that stitch which the nature of the work requires. This close imitation of hand labor is witnessed in the operation of Porter's machine. The following is a description of its parts:

A large iron frame, swinging on a central bolt, contains a cross piece which holds all the chisels and other working apparatus. The position of this frame determines the direction of the chisels, that is, the angle at which they stand in relation to the stone. This central bolt may also easily be raised or lowered, according to the thickness of the stone to be wrought. Above the chisels, and in the same line of direction, are several very large hammers, having a motion of about one inch and a quarter. Behind the hammers are stout spiral springs assisting in confining them in their place. Motion is given to these hammers by cams placed on a cross shaft, just behind the hammers, so arranged as to cause the hammers to strike, not simultaneously, but in succession. The hammers being raised by the cams, strike with great force upon the chisels, each of which has a motion of one tenth of an inch, chipping off the stone to such a depth as may be required. The chisels are of various patterns, each suited to the nature of the work required. Three hundred revolutions per minute may be given.

The stone rests upon a travelling platform, and admits a stone three feet and four inches wide and twelve or sixteen feet long. Or two such platforms may be fastened together. The whole is simple in its construction. The chisels are changed with great facility, and the workmanship is excellent, the stone being left with a good finish from one end to the other. It usually requires to be passed through a machine three times. When one side is finished, the stone is turned over, and other sides are dressed in such style as may be desired. The machine is estimated to do the work of fifty men, or dress one thousand superficial feet of brown store, or nearly five hundred feet of marble once over in ten hours, allowing the machine to be idle one third of the time.

This machine is now in operation in Fourteenth street, in this city, between the Ninth and Tenth avenues. We commend it to the notice of those of our readers who are interested in such kind of work.

IMPROVED BALANCE WATER-GATE.



This figure is a view of an improved Balance Water-Gate, invented by F. S. Coburn, of Ipswich, Ms., and for which he has taken measures to secure a patent. Figure 1 is an inside view. A in figure 2 is a circular gate with two openings B B, when the gate is turned, so that the openings B B are opposite the openings C C the water passes through. When the gate is closed, as the pressure of the water is alike on all the surface of the gate, it is equally balanced on the screw D which can be so adjusted that there shall be just friction enough to keep the gate water-tight and no more. This gate is so sensitive that the governor will readily regulate the flow of water. The inventor will assign his interest in this invention for any State in the Union, Massachusetts excepted, on terms that cannot fail to be satisfactory.

Allen's Stone Saw Frame.—A gentleman of Dorset, Vt., offered not long since a prize of $10,000 for the best invention to saw stone into pyramidal shapes. Among those competing for the prize is Mr. Allen, of South Adams, Mass, who has invented and constructed a machine for sawing, ingenious and peculiar. His mode of doing the work is to have two saw frames; one suspended over and intermatched with the other, each frame holding its saw, so that one saw will saw one side of a pyramid, and the other the same shape the other side, making the pyramid of any degree of obtuseness or acuteness. Each frame is guided by its own separate guides, placed on its outer side; and each is suspended from its four corners by chains attached

to the corners and wound round a windlass above. By this apparatus, a large flat stone, marble or granite, can be placed upon the ways of the mill, and by having a succession of saws in both the upper and under frames, operating upon the stone at the same time, the whole slab can be reduced to pyramidal posts at once. Mr. Allen proposes to apply for patents on various parts of his machine, and will be prepared to supply the community, though he may not handle the prize offered in Dorset, feeling that his mode of hanging the saws is one of practical utility, and which will prove in the long run of great value in the stone business.

English Patents.

Improvements in the Manufacture of Varnish.—*This invention is* intended to produce a superior quality of copal varnish. It is based upon the discovery that copal gum consists of two constitutive parts or ingredients, one of which is entirely soluble in oil and in essence of turpentine, and the other of which is quite insoluble in the substances employed in making varnish. It is this latter portion of ingredient which deteriorates the pellucidity and whiteness of the varnish, especially by taking a brown tinge, by boiling in a copper or other vessel, on an open fire, as the manufacture of varnish is usually carried on. Hence, the object of the present invention is to purify the gum copal, by extracting from it the insoluble part, either by means of ordinary distillation, or by means of a hot-water bath, or else by means of over-heated steam, by applying either of which, the insoluble part is volatilized and condensed in a suitable receiving vessel. The quantity of insoluble matter, viz.,—from fifteen to thirty per cent. of the gum copal acted upon, having thus been expelled, the remaining portion is left to cool or solidify, and is then ready for use, being perfectly soluble in both warm and cold oil, turpentine, and similar matters, with which it wlll produce a quality of varnish superior to that which is manufactured in the present way.

Improvements in the Manufacture of Soap.—This invention consists in peroxidizing any oxide of iron that may be present in fatty materials, acid or not acid, undergoing the process of saponification by the injection of air or oxygen,—removing the peroxidized iron by means of any vegetable or other acid or principle (such as tannic or gallic acid) capable of combining with it, so as to form an ink or inky solution, and afterwards making soap with the fatty materials thus purified or bleached.

The manner of carrying out this invention is as follows: By means of a force pump or other suitable agent, air or oxygen, in a heated or cold state, is injected into the mass through a perforated coil of pipe in the body of the vessel, which should be made of wood, or lined with sheet-lead; and this injection of air or oxygen is continued so long as may be considered necessary; the time varies according to the degree of oxidation already existing, and can only be ascertained by taking samples and by practice. An infusion or solution of sumach, gall-nuts, or other material capable of combining with the peroxidized iron existing in the materials under operation, is then added to the mass, and the whole is well stirred together; after which the inky solution is drawn off from the vessel, and the materials are boiled, for about two hours, with a like quantity of pure water, which is afterwards drawn off, and with it any of the inky solution that may have remained in the materials. The soap-making is then proceeded with, and the process completed in the ordinary manner.

The purified soap produced by this invention will be found suitable for dyers, scourers, and others who require a soap quite free from iron,—the presence of which is, in many cases, highly injurious to many descriptions of colors.

An Improved Process for Plating or Coating Lead, Iron, or other Metals with Tin, Nickel, or Alumina.—The first part of this invention consists in a mode of preparing a solution of the metal with which the articles are to be coated or plated; for which purpose they proceed as follows:

For tin, metallic tin is dissolved by nitro-muriatic acid, and then precipitated by an alkali or alkaline salt, preferably by the ferro-cyanide of potassium; sulphuric acid or muriatic acid is then mixed with the precipitated oxide of tin, and water is added thereto. The mixture is boiled in an iron vessel, with a small portion of ferro-cyanide of potassium, and the liquor being filtered, the solution is completed.

Another mode of forming a solution of tin is as follows: The precipitated oxide of tin having been obtained as above described, ferro-cyanide of potassium is added to the oxide and boiled; the solution is then set aside to cool, and filtered; and a stream of sulphuric acid gas is subsequently passed through the solution.

For nickel, this metal is dissolved by nitro-muriatic acid, and the oxide is precipitated by ferro-cyanide of potassium; the oxide is then washed, and cyanide of potassium dissolved in distilled water, is added thereto. The mixture is then boiled, and when cool, it is filtered, which completes the solution of nickel.

For alumina, alum is dissolved in water, and ammonia is added until it ceases to precipitate any more; the alumina is then washed and filtered, and distilled water is then added, and the mixture is boiled with cyanide of potassium. When cold, it is filtered, and the solution of alumina is ready.

Having thus obtained either of the foregoing solutions, the patentees suspend the articles to be covered or plated, by copper or brass rods, in a bath of the required solution, and attach them to the zinc pole of a battery, to the positive pole of which is attached, in the case of a tin bath, a piece of platinum or a pole of tin; in the case of a nickel bath, a bag containing oxide of nickel or a pole of nickel; and in the case of a bath of alumina, a bag of alumina, or a pole of aluminum, or a piece of platinum.

Improved Apparatus for the Distillation of Coal and other Bituminous Substances.—This invention relates more particularly to the retorts or vessels in which the distilling process is carried on for the purpose of obtaining gas for illumination; but it is also applicable to retorts for distilling bituminous or resinous substances for other purposes.

The principal object of this invention is to obviate the objections to which earthen retorts are open. This is effected by coating the retorts internally with an enamel or glaze, which will prevent the gas from escaping through the pores of the material of which the retort is composed; and will also, by presenting a smooth surface, prevent the carbon from adhering thereto and forming a crust thereon.

Any of the processes which are well known and in use, or that may hereafter be invented, for glazing or enameling surfaces, may be employed for the purpose of the invention.

In order to prevent carbon from depositing and crusting on the internal surface of iron retorts, the patentees also propose to enamel these surfaces of iron retorts by any of the processes for enameling hollow iron vessels; and, if required, the external as well as the internal surface of earthen or iron retorts may be also glazed or enameled.

Improvements Applicable to Machinery for Printing Fabrics.—The object of these improvements is, first, to obtain greater regularity and uniformity in the supply of color, than can be obtained by the ordinary machinery; and, second, to obviate the necessity of employing the number of children at present required to assist in the operation of *printing fabrics*. The machine forming the subject of this invention being *separate from the* printing-press, it will be seen that the improvements are *applicable to any* machinery for block-printing fabrics.

The color block or table is covered with a cloth of some air-tight and waterproof material, and the required elasticity is imparted to it by means of a collapsible vessel made of India-rubber or other suitable material, provided with a counterbalance weight. This vessel is filled with water or other liquid, and it will, therefore, by means of its counterbalance weight, keep the printing cloth at the required tension. The color is placed in a trough or reservoir, at one end of the cloth; and this latter is supplied with color by means of a horizontal brush or other suitable contrivance, which extends across the table, and is worked backwards and forwards from the color trough over the color cloth by means of a lever; so that at each stroke of the lever fresh color will be supplied from the trough or reservoir at the end,—the apparatus being so arranged, that the cloth and the color which is contained in the reservoir or basin at the end shall be kept together, and when the printing operation is finished and the color is required to be changed, the color cloth can be scraped, and the cover of the color trough or reservoir moved forward by a single stroke of the lever, so as to close the color reservoir, and thus prevent the color from drying by evaporation or exposure to the air, as is the case in the ordinary method of working, in which the color is found to dry in the brushes on the printing frame, or sieve, and in the vessels.

Improvements in Preparing Loaf-Sugar for use, and Certain Apparatus for the Same.—This invention consists in dividing loaf-sugar into systematic, regular, and equal morsels, by means of saws and stamps. To this end the inventor provides a series of straight saws, operating in the ordinary manner, parallel to each other, side by side, at $\frac{3}{4}$-inch or any other required intervals; and he subjects loaf-sugar to these for the purpose of cutting it first into slices or slabs; secondly, cross-wise into square sticks; and, thirdly, crosswise into cubical morsels,—there being thus insured (except in outside pieces) a systematic, equal, and regular division to any size which may be desired. The sugar may be subjected three times to one series of saws; or several series may be employed working in the several directions; or a series may be fixed in a frame and used by hand. Circular saws may be employed, if accurately fixed, and a good deal set, and provided the increased amount of sawdust be not regarded; a series of small circular saws, about six or eight inches in diameter, may be used—the blades being mounted on one spindle, and fixed at the intervals above mentioned.

In some cases the patentee proposes to cast or saw the sugar into slabs one morsel thick, and subject these to pressure between reticulated edged metal stamps or gratings, which cut and crack the slab on both sides to correspond. One grating is made sharper edged than the other, to carry the morsels back with it, to be pushed off in receding, by means of pins fixed behind it; or the slabs are divided by such means, first into sticks, and these again into morsels; or the cast or sawn sticks are divided by such means at once; or they may be divided by the ordinary fixed chopping-knife, with a stop fixed beyond to regulate the size cut off.

The patentee also proposes to cast the loaves of a rectangular form for the above purpose (although this is not essential,) and to cast the sugar in slabs, or in sticks, or in morsels at once.

AN IMPROVED SOAP CALLED "SAPONITOLINE."—The invention consists in manufacturing a gelatinous soap in the following manner:

"Supposing (says the patentee) that I wish to manufacture one thousand five hundred pounds of the said soap, I proceed as follows: I first pour in a copper boiler about eighty-eight gallons of soft water, and mix with it about one hundred and twelve pounds of crystal soda, or about seventy-nine pounds of salts of soda. Two or three hours after the soda has been in contact with the water, I agitate the mixture, and add to it about one hundred and twelve pounds of common hard or soft soap. The fire being placed under the furnace, I leave the mixture to be heated until the temperature attains forty or forty-five degrees centigrade, when I add to the liquid about seventeen pounds of Russian or American pearlash;—I well mix the whole, and when the soap is nearly dissolved, I suspend in the middle of the copper a white linen bag, containing about seventeen pounds of pounded quick-lime. This linen bag, strongly tied at its upper extremity to avoid any of the matters escaping, must be immersed in the liquid to a depth of about eight inches.

"When ebullition has commenced in the copper, I slowly agitate the liquid mass, and pour therein about five gallons of mucilage of linseed, marshmallow, or psyllium seed—after which, I add seven and a half pounds of borax, or about two and a half pounds of calcined alum. When the whole is well mixed in the copper, and the liquid presents the appearance of being perfectly homogeneous, I leave it to boil on a slow fire during three quarters of an hour. The fire should then be extinguished, and the copper covered over. When the temperature falls to fifty-five or sixty degrees, I pour the liquid into barrels, where it becomes solidified in about twenty-four hours (supposing that hard soap has been used;) if otherwise, it will remain in a gelatinous state."

AN IMPROVED PROCESS FOR PRODUCING PHOTOGRAPHIC PICTURES.—This invention consists, first, in employing a textile or woven fabric instead of paper as the surface on which the picture is to be produced. This tissue or woven fabric must be prepared to receive the ordinary chemical agents used in photographic operations,—and it will be found that it possesses many advantages over paper. For instance—a more even surface may be obtained than when paper is employed; and the liability to tear or become injured while being subjected to the liquid chemical agents, is much diminished.

In operating upon fine linen cloth, or any other kind of fabric which is capable of being rendered transparent, the inventor first cuts the fabric into pieces of suitable size, and coats them with a paste made of rice-flour, which must be allowed to dry perfectly before submitting the fabric to the subsequent operation. He then takes about six parts of virgin wax, two parts of Venice turpentine, and two parts of the best linseed oil, and having melted the wax in a vessel coated inside with silver, adds thereto the turpentine and oil—taking care to incorporate these substances well together. The fabric is then immersed in this mixture, which is maintained at a moderate temperature; a gelatine, rendered insoluble in fixative baths, may be used for this purpose. The required positive photographic pictures are obtained in the ordinary manner, and fixed in baths of ammoniacal hyposulphites, according to the effect desired to be obtained.

In order to remove any alkaline salts which may remain after the ordinary washings, and would, if left, be injurious to the durability of the picture, the patentee immerses it for about ten minutes in a vessel containing pure alcohol, which possesses the property of depriving it of any injurious matters—and, after being washed in hot water, the picture is ready for the reception of color, as hereafter described.

Excellent results are said to be obtained by treating ordinary photographic pictures in the following manner: Having obtained a positive upon a sheet of paper rendered sensitive by nitrate of silver, and perfectly fixed it by means of baths of ammoniacal hyposulphites, it is treated with boiling water, alcohol, and a solution of potass, for the purpose of neutralizing or removing any chemical or other impurities which may have been introduced in the sizing of the paper, and which would affect the durability of the picture. The paper is then treated with starch of greater or less consistency, according to the degree of transparency desired, and passed through a vessel coated with silver, and containing melted white virgin wax or purified mutton fat. The excess of wax or fat is next removed by placing the picture between sheets of blotting paper, and passing a hot iron over it. The pictures having been thus prepared and rendered transparent, suitable colors are applied thereto by hand, in the usual way of coloring portraits or pictures—with this difference, that they are laid on the back of the transparent fabric. The colors applied should be oil colors of superior quality. When the colors are dry, the picture is attached by glue to a flat and even surface. If it be desired to give greater brightness and effect to the picture, mastic varnish or suitable purified gelatine is applied to its surface.

By the above-described process a very superior picture will be produced, combining the truthfulness of photography with the artistic effect of a painting.

IMPROVEMENTS IN PRESERVING ANIMAL AND VEGETABLE MATTERS.—This invention relates to means for discharging the atmospheric air from vessels constructed to receive animal or vegetable matters, for the purpose of preserving them.

To this end, the patentee employs the vapors of alcohol, or other liquids which vaporize at a lower temperature than boiling water, in the manner following: He employs, by preference, as the holding or retaining means for the animal or vegetable matters to be preserved, cases or vessels of tin or tin-plate, such as have heretofore been employed when preserving animal or vegetable matters; except that, according to one method of carrying out his improvements, he applies to the lid or cover of each case a short piece of tin or other soft metal pipe, for the purpose hereafter explained. The vessels or cases being thus prepared, the animal or vegetable matters to be preserved are introduced thereto in a raw state, and, by preference, suspended in a case or vessel by thread or otherwise. The closing lid or cover is next applied or soldered, so as to make the case air-tight, except through the small pipe. A small quantity of alcohol or other liquid, capable of vaporizing at a temperature below that at which water alone vaporizes, is forced into the case through this small metal pipe,—and the case is then placed in a bath of hot water, or otherwise subjected to heat sufficient to vaporize the alcohol or other liquid employed. The vapor, thus generated, will have the effect of driving out the atmospheric air contained therein through the pipe by which the alcohol was introduced thereto. By the application of a light to the outer end of this pipe, when the whole of the atmospheric air has been expelled, a steady blue flame will be obtained from the ignition of the vapor, which will then alone escape. When this is the case, and it may be thus judged that the whole of the vapor is spent, the pipe is closed by compression, and soldered to keep it air-tight.

Another method is to form each vessel with two of such small pipes, and in place of applying the alcohol or other liquid to be vaporized in the case with the matters to be preserved, it is placed in a separate vessel or boiler, to which suitable heat is applied, to generate the vapor and raise the pressure to a few pounds (say about fifteen pounds) to the square inch. From this boiler a pipe conducts the vapor generated to the vessels or cases to be treated. This pipe is provided with a tap for closing the same when desired, and a piece of prepared, or what is commonly called vulcanized, India-rubber tubing, so as readily to connect this pipe of communication with one of the small pipes in a vessel or case containing animal or vegetable matters to be preserved; but other connecting means may be employed. When a connection is obtained between the boiler in which the vapor is being generated, and the case containing the matters to be preserved, the vapor will drive off the atmospheric air from the case by the second small pipe. By the application to this second pipe of a light, the absence of atmospheric air in the case will be ascertained, as when employing the former method, by a steady bluish flame being obtained. The supply of vapor to the case is then to be stopped, and both pipes closed by pinching and soldering.

In carrying out this second method, the patentee sometimes forms the second or escape pipe from the vessel or case containing the matters to be preserved, sufficiently long to be bent over and dipped into another vessel; and when the vapor has expelled the atmospheric air, as explained, the end of this second pipe is dipped into a vessel containing liquid gravy, or gelatine or other matter, which, from being somewhat heated, is for the time in a fluid state. At the time of applying the second pipe to the gravy, gelatine, or other fluid, the supply of vapor to the case is cut off,—when, by the condensation of that vapor, a vacuum or partial vacuum will be created in the case, and the liquid gravy, gelatine, or other matter will flow in by the second pipe to aid (by covering the matters to be preserved) in excluding the atmospheric air. This method will be found very beneficial when treating cooked meats—as boiled beef, for instance—as well as in the preservation of soups and other liquids.

The patentee claims the employment of alcohol, or other liquids which vaporize at a low temperature—that is, below that of boiling water—as a means for discharging the atmospheric air from vessels or cases containing animal or vegetable matters to be preserved.

AN IMPROVEMENT IN COMBING WOOL AND OTHER FIBRES.—This invention is applicable to the carrying comb of a machine, in which a circular or endless comb is employed, as is now very commonly the case. The improvement consists in applying a curved or bent plate (of a corresponding radius with the circular or endless comb) to push the wool or fibre on the carrying comb in a curved form towards the circular or endless comb, so that the wool or other fibre may be deposited equally in the circular or endless comb.

The patentee remarks that as the nature of wool-combing machines to which his invention is applicable,—viz., those called Liester and Donisthrope's patent machines—is well known, it will only be necessary to explain the manner of applying a bent plate to the carrying comb of such machines. The carrying comb, he says, is, as heretofore, moved to take a tuft of wool from the nippers, and is then moved to the circular comb, and caused to deliver such tuft of wool into the teeth of the circular comb; and the only change made in the working of these parts is, that by means of the curved plate applied to the side of the carrying comb next the circular comb, the tuft of wool, immediately after it has been taken by the carrying comb, is, by the bent plate, moved into a curved line across the carrying comb,—such curved line corresponding with the curvature of the circular comb. The curved plate is carried by a stem, which enters the rod on which the comb is mounted, which for this purpose is made hollow; and the curved plate is, by a spiral spring acting on its stem, constantly drawn inwards. The curved plate is to be moved outwards by any suitable mechanism, immediately after the tuft of wool has been taken by the carrying comb from the nippers; and the curved plate is immediately afterwards to be released and withdrawn by the spring, so that the curved plate may be out of the way when the tuft of wool is delivered from the carrying comb into the circular comb.

IMPROVEMENTS IN THE MANUFACTURE OF IRON AND STEEL.—This invention is applicable to the reduction or smelting of the ores of iron, to the smelting and puddling of pig or plate-iron, and to the manufacture of bar, plate, rod, and sheet-iron, and iron intended to be afterwards converted into steel.

For the purposes of this invention the patentee employs a close furnace, instead of the open furnaces hitherto employed in such manufacture; and to the furnace valves are adapted, for regulating the heat required for smelting the ores therein; and the smoke and gases from the furnace are employed for drying purposes (such as the drying of the fuel,) by conducting off the same through a pipe inserted into the side of the furnace near the top thereof. In connection with the closed furnace the patentee employs air chambers, in combination with either hot or cold blast, for the purpose of creating the necessary draught in the furnace, instead of employing a mechanical blast only when such furnaces are used for "roasting" or "torrefying" the ores of iron; and when the furnace is not required to be used for this purpose, but only for the smelting of the ores of iron, the air chambers may be closed by dampers, suitably placed and connected therewith. The fuel employed for the reduction or smelting of the ores of iron, and the manufacture of bar, plate, rod, and sheet iron, and steel, is peat or vegetable carbon; either peat in its natural state, or compressed peat, or prepared peat, formed by mixing together about equal proportions of peat and small anthracite coal, and compressing the same together into a solid mass by means of mechanical pressure; or a compound of the refuse turf or peat fuel, heretofore considered as waste, dissolved in a pit into a pulp, and then moulded into "peats" or blocks.

The Application of a new or Improved Material or Substance to the Construction of certain parts of Machinery.—This invention relates, firstly, to the employment of an efficient substitute for the wood and metal ordinarily used in certain moving parts of machinery; which substitute, besides possessing persistent qualities equal to those substances when similarly applied, will, from its lightness and strength (without being subject to crack like wood,) and capability of being moulded into any required shape, offer to the mechanical engineer advantages superior to metal or wood.

It is well known, that in constructing the spindles of roving and spinning machinery, and other parts connected therewith, it is desirable to make them as light as is consistent with strength and durability, in order to obtain great speed with the least possible wear and tear expenditure of motive power. For this purpose the inventor proposes to apply to such use a composition of recent introduction into the arts, and consisting of a preparation of India-rubber and sulphur, with or without shellac, or of gutta-percha and sulphur, subjected to a high degree of heat, and thereby converted into a hard and persistent substance.

In constructing spindles according to this invention, it may be found desirable to cast or mould the warve or pulley with the spindle; and to reduce the elasticity, or rather to give any required amount of rigidity to the spindle, a core of iron or steel wire may be introduced into the mould, and caused to unite with the plastic material. In manufacturing the feeding, drawing, and other rollers of preparing and spinning machinery, the rollers are cast in suitable moulds (with fluted or plain peripheries,—a metal rod, which is to form the axle of the roller, being introduced as a core into the mould.

The employment of this hard compound in the manufacture of shuttles (for looms) will be found to offer many advantages, from the facility with which the ends may be tipped with metal, and the cop or bobbin holder may be attached. These pieces are to be introduced with the compound, in a plastic state, into the shuttle-mould, and a union of the compound with the metal will be readily effected by pressure.

Where great lightness with durability, without the liability of cracking, is desirable, as in the manufacture of bobbins or other such articles, this may be obtained by introducing into the above-mentioned ingredients of the compound, while yet in course of manufacture, cork-dust or chips, sawdust, cotton waste, or other vegetable fibre, in the proportion, say, of about one part, by weight, more or less, to two parts, by weight, of the other combined ingredients.

The articles, when moulded to the required shape, are submitted to about 300° Fahr, for about six hours, after having been packed under pressure in moulds or iron boxes, in a bed of fine plaster or soapstone, ground to an impalpable powder. In making the plastic material for the aforesaid purposes, the following ingredients, in the proportions specified, may be employed indifferently to produce the like result, viz:—One part, by weight, of sulphur, to two parts, by weight, of India-rubber or gutta-percha, or one part, by weight, of India-rubber and of gum-shellac to one part, by weight, of sulphur.

Secondly, this invention relates to the employment of the hard persistent material produced, as above mentioned, as a substitute for the brasses or metal filling of bearings of machinery; and, in order to adapt it the better to this purpose, from seventy-five to one hundred per cent. more or less (by weight) of plumbago or black-lead is added, during the manufacture, to the component parts of the material; and thus a substance incapable of abrasion by friction, but susceptible by that means of a higher polish, is obtained The bearings are moulded in the manner above described, and when moulded are in like manner subjected to heat, under pressure, for the purpose of effecting the conversion of the plastic compound into a hard substance, and that without injury to the form of the moulded article.

An Invention for Preserving Meats.—This invention relates to the preservation of animal and vegetable food and spices by the desiccating process, and consists in first desiccating the meat in small portions, either in a vaccuum or by the aid of heated air. The desiccated portions are then pounded and reduced to a powder, which is again desiccated—thereby effectually removing every particle of moisture therefrom, and consequently rendering it less liable to become decomposed after long keeping.

The preservation of meat by drying it, is a process that has long been known, but it has not been brought into general use, as, in consequence of the meat being dried in pieces, whether the drying be effected in vacuo or by means of hot air, all the conditions necessary to effect a good and long preservation are not obtained, by reason of the drying being imperfect and incomplete. The meat consequently retains a certain amount of moisture internally, which will eventually cause decomposition to take place.

By grating or otherwise reducing the meat, previously dried in small pieces, a powder is obtained, which, by being submitted to a second drying process, is completely deprived of moisture. This mode of preparation, without interfering with the nutritive qualities and original flavor of the meat, has the advantage of considerably reducing its bulk, by the subsequent compression to which it is subjected, whereby it is rendered much more easy of transport. Seasoning of all kinds is also submitted to the same treatment, namely, first drying and then reducing to powder, which powder is again thoroughly dried. The inventors also propose to combine meat powder with vegetable tablets, by means of compression, so as to obtain a single product, which may be termed compound meat and vegetable tablets.

In place of simply preparing the preserved vegetables in combination with the lean portions of meat, it is proposed to combine them with fat in the following manner:—The vegetable tablets having been prepared in the ordinary manner, they are submitted to successive immersions in soup, and allowed to dry after each immersion, either by artificial or natural currents of air. There is thus formed over the tablets a layer of concentrated soup, which layer, of course, varies in thickness, according to the number of immersions to which the tablets have been subjected. This covering, when properly dried, forms an even coat over the entire tablets, and other coverings of lead or paper may be dispensed with. When the tablets are to be used, the covering can be easily dissolved in warm water, which is thus formed into soup. These improvements are of great importance in the preservation of vegetable tablets, as the tablets thus prepared contain in themselves all that is necessary for a meal, and all further cooking is dispensed with. These tablets may be made of any nutritive preserved substance, and of any convenient size.

An Improved Method of Preventing the Alteration of Bank-bills.—One of the most common methods of counterfeiting bank-notes or bills consists in erasing the figures which indicate the denomination of the note, by rubbing with the hand or otherwise, and reprinting or pasting upon the surface so prepared, other figures indicating a higher denomination. Thus, the word or figure "five" may be erased, and upon the surface which it occupied "fifty" or "one hundred" may be printed. Alterations of this description easily deceive the public, as, when well executed, they can be detected only by the initiated, and upon very close examination. To render this species of alteration impossible, by affording to the uninitiated a ready means of instantly detecting it if practiced, is the object of the present invention, which consists, in so imprinting into the body of the paper, the character or words which indicate the denomination of the note or bill, that it can only be erased by the total destruction of the paper, and cannot be replaced or imitated even if it were found possible to erase it. This is accomplished, either by a process analogous to that which is known in the manufacture of paper as "water-lining," or by printing the paper as it is manufactured, with the required characters or figures, by a peculiar process, which causes the color to penetrate entirely through the body of the bill or note, so that it cannot be removed without destroying the texture of the paper itself.

During the process of manufacturing the paper, and while yet in a soft pulpy state, it is imprinted with characters or letters indicating the denomination of the bill, "five" for a five pound note, "ten" for a ten pound note, and so on, for notes of other denominations. This may be accomplished in various ways, as follows:—First, by water-lining in the ordinary way, with wire secured to the vellum, so arranged as to impress the required characters upon the paper; or the same effect may be produced by means of types, slightly raised upon the surface of a cylinder, which is caused to bear upon the web of paper while it is still soft and impressible, and thus indent the required characters into the body of the paper,—the velocity of the surface of the cylinder being exactly equal to that of the web of paper as it passes through the machine. To render the characters thus produced more apparent and striking they may be imprinted upon the soft pulpy paper in colors, and in such a manner as will insure the color sinking deep into and entirely penetrating the body of the paper. This is readily accomplished by means of a cylinder, similar to that above described, having upon its surface points set close to each other in lines forming the desired figures, and sufficiently elevated to penetrate the paper whilst it is yet in a soft pulpy state. These points are charged with ink of the required color, which is transferred (as the cylinder revolves) to the paper, into the body of which it penetrates. The holes made by the points are instantly closed by the pressure rollers, to which the paper is afterwards subjected, and the coloring is thus caused to penetrate entirely through the note, and consequently cannot be removed for the fraudulent purpose before mentioned.

NEW BOOKS.

STATE SOCIETY'S TRANSACTIONS.

We ought ere this to have rendered our thanks to Mr. B. P. Johnson, of Albany, for the volume of The Transactions of the State Agricultural Society, received in November. It is a very valuable book. Our friend, Wm. Bacon, Esq., has also sent us the Second Annual Report of the Secretary of the Massachusetts Board of Agriculture.

ROBERT MERRY'S MUSEUM AND PARLEY'S MAGAZINE.

We have a vivid recollection of the enthusiasm produced among juveniles of all ages, by the first appearance of the story-books of Peter Parley, and the periodicals which soon after followed them, from the same popular writer. These publications have not yet ceased to make their regular appearance before the public, and though they have ceased to attract by their novelty, Gilbert Go-Ahead and Uncle Hiram, etc., still present themselves as long ago. We do not see that they have at *all* deteriorated. In these well-illustrated pages, we still see the peculiar characteristics which then so widely distinguished them from anything before published. May they long continue to please and instruct the youth of this country!

A COMPLETE PRONOUNCING GAZETTEER OR GEOGRAPHICAL DICTIONARY OF THE WORLD. Edited by J. THOMAS, M.D., and T. BALDWIN, assisted by several other gentlemen. Philadelphia: J. B. Lippincott & Co. 1855, 2177 pages.

We have given this great work a careful examination, and see nothing in it that does not commend itself to general approval.

It is a pronouncing Dictionary, and the pronunciation of the names of places in the several countries is determined by eminent scholars, natives of each, or practically familiar with them, and is therefore quite reliable. The introduction, extending over 22 pages, is a concise, but yet full statement of the sounds of the letters of different modern European languages, and proves them to have come from hands quite competent to the task. This adds very much to the value of the work, and may be applied to the determination of sounds of words not found in this volume.

Under the different States, we have not only the natural and political features of the country, and other matters usually treated in such works, but objects of interest to tourists—forest trees, animals, history, etc.

In its statistics, the most recent information is given. Peale's Museum has disappeared from Philadelphia, and other stereotyped descriptions of divers places long since out of date, are omitted. We have looked in vain for a single error in those sections of country with which we are familiar. We are satisfied that no Dictionary so extensive as this, has been published in any country more worthy of general confidence; and we hope the enterprising publishers will receive as liberal a reward in their sphere, as we are sure has been earned by the learned and accomplished editors and assistants.

THE CONSTITUTIONAL TEXT-BOOK; a Practical and Familiar Exposition of the Constitution of the United States, and of portions of the Public and Administrative Law of the Federal Government. Designed chiefly for the use of Schools, Academies and Colleges. By FURMAN SHEPPARD. Philadelphia: Child & Peterson. 1855, 324 pages.

This volume contains a short history of the discovery and sentiment of the colonies, the articles of confederation, the constitution, etc., as described in the title. Its object is to instruct the youth of the country in this important branch of education. No one can doubt the great dearth of such books, and the consequent ignorance of the masses on all these topics. To meet this want, this volume has been carefully prepared, and it is offered to the public in a form which strongly recommends it to a favorable reception.

STRAY LEAVES FROM THE BOOK OF NATURE. By M. SCHELE DE VERE, of the University of Virginia. New-York: G. P. Putnam & Co., 1855; 291 pages.

An entertaining, tasteful, sprightly, truthful, instructive volume, from the pen of a scholar. It opens with "Only a Pebble," and traces the pebble through various transformations into vegetable and animal life and beauty, in chapters, distinct and yet continuous. Its place is in every school library, Sunday-school and family, and in eac it will be read.

DICKENS' LITTLE FOLKS. 6 vols. New-York: Redfield.

These little volumes are selected from the larger books of this popular writer, and are got up especially for the young. The series consists of The Child-wife from David Copperfield, Little Nell from the Old Curiosity Shop, Little Paul and Florence Dombey from Dombey & Son, Oliver and the Jew Fagin from Oliver Twist, and Smike from Nicholas Nickleby. They form a capital series.

SABBATH EVENING READINGS OF THE NEW TESTAMENT; ST. JOHN. By REV. JOHN CUMMING, D.D., etc., etc. Boston: John P. Jewett & Co.; New-York: Sheldon, Lamport & Co. 1856. 464 pages.

Our opinion of Mr. Cumming is well known to our readers. The more we read of him, the more highly we regard his sound judgment and discrimination. His style is a model for works of this description.

A VISIT TO JUDEA, CHINA AND JAPAN, IN THE YEAR 1853. By BAYARD TAYLOR. New-York: G. P. Putnam & Co. 1855. 539 pages.

This writer is too well known and too highly appreciated to need any editorial notices. Those who can get these books of Mr. Taylor will of course have them. The present volume is not behind its predecessors in its style and topics, nor in its execution.

THE STABLE BOOK. Being a Treatise on the Management of Horses, in relation to Stabling, Grooming, Feeding, Watering, and Working; Construction of Stables, Ventilation, Stable Appendages, Management of the Feet, Management of Diseased and Defective Horses. By JOHN STEWART, Veterinary Surgeon, Professor of Veterinary Medicine in the Andersonian University, Glasgow. With Notes and Additions, applying it to American Food and Climate. By A. B. ALLEN, Editor of the *American Agriculturist*. With Illustrations. C. M. Saxton, New-York. 1856. 369 pages.

The author of this book was formerly a Professor of the Andersonian University of Glasgow. This institution and that of King's College, in London, are the only colleges in Great Britain, giving general instruction in science and literature, that support a professorship of veterinary science. Such instruction is given elsewhere only in special institutions. Some years since, Professor Stewart emigrated to Australia and devotes himself extensively to the rearing and caring for horses, cattle, and sheep. He has the reputation of a well-qualified and practical veterinarian, and his book has taken a high rank in his native country,as a plain, practical, and judicious treatise.

We regret that we have not in this country an institution for the thorough training of veterinary practitioners. Our Boston friends are making an effort of this kind under Dr. Dadd, who received his veterinary education abroad. We know of none educated in this country. The mode in which Mr. Allen was taught is given us by himself;— "The horse, both theoretically and practically, has been a favorite study with me from childhood, and for the past ten years I have been more or less engaged in breeding and rearing them on my farm, and in breaking and fitting them for market. I had also, in early life, during a residence of nearly two years in the north of Europe, the advantage of studying the stable economy of large military establishments." But the making of surgical instruments does not qualify one to use them, nor the compounding of medicines enable one to administer the proper remedies to the sick. The best groom and the best rider may know nothing of veterinary science. Anatomy, physiology, pathology, skill in surgery, etc., do not come by instinct, nor even by mere study. Dissections, practical surgery, etc., are essential. Hence we receive with caution all inexperience, as we do the absence of professional instruction, and especially when accompanied with personal assurance.

As to the book before us, we confess we do not quite like the tone of the few short comments of the American editor. In certain departments, none stand higher in our estimation than Mr. Allen. But in this department we doubt. The character of many of these short notes increases our doubt. The first specimen of editing that arrested our attention (page 24) did not strike us favorably. Mr. Stewart says that plank floors are objectionable in stables, because they are decomposed by the urine, and thus produce injurious gases, and also are made slippery, and because they are liable to get misplaced. Mr. Allen says that these objections do not exist to such floors here, because the climate is drier! Mr. Stewart recommends for horses *having flat* feet and kept in a straw-yard much exposed to wet, that they should be *shod with leather soles*, etc. Mr. Allen, assuming to know better than Mr. Stewart, says, page *131*: "*All this* is of more than doubtful utility; and experience shows it to be at least useless in *all* cases and dangerous in many." Many of the American notes are of this description. Still, as nearly half the entire matter added in this American edition, consists of some four and a quarter pages of description of the stables of Mr. Gibbons and Mr. Pell, quite worthy of attention, and which add to the value of the work, we ought not to be too difficult. The work is a valuable one, and its reprint here is a service to humanity.

HEATHEN RELIGION, in its Popular and Symbolical Development. By Rev. JOSEPH B. GROSS. Boston, John P. Jewett & Co.; New-York, Sheldon, Lamport & Blakeman. 1856. 372 pp.

Mr. Gross has expended a vast deal of research in preparing this volume, and has collected together an amount of information in respect to mythology and idol worship, which exceeds that of any similar work within our knowledge. This renders the book very valuable. Another portion of the volume consists of the author's philosophy of religion, and this we do not consider of so great value. It furnishes abundant food for thought, but we do not always agree with his conclusions. He exalts idol worship too much, in our judgment, and attaches quite too little importance to any departure from the religion of the Bible. The author may not intend this—probably he does not—and yet we cannot but think there is such an influence over the mind of a confiding reader. Still we regard this as a very valuable work.

THE ONYX RING. By JOHN STERLING. With a Biographical Preface, by CHARLES HALE.

ST. GILDAS AND THE THREE PATHS. By JULIA KAVANAGH, Author of "Nathalie," etc.

THE BLUE RIBBONS. By ANNIE HARRIET DRURY.

These three small volumes are published by Whittemore, Niles & Hall, of Boston. They are all capital books for our young friends—books they would read with great interest, and not without an indirect but strong influence in favor of honesty, truth, and integrity. We heartily commend them.

WAGER OF BATTLE. A Tale of Saxon Slavery in Sherwood Forest. By HENRY W. HERBERT, Author of "Henry VIII. and his Six Wives," etc., etc. New-York: Mason Brothers. 1855.

This volume is descriptive of the manners, customs, and institutions of our ancestors, the Saxons and the Normans. It is, of course, a tale of chivalry, and stories of this class no man can write better than Herbert. It is beautiful in style, and is one of the most entertaining volumes ever published.

THE WONDERFUL PHIALS, and other Stories. Translated from the French. By ANNIE. New-York: M. W. Dodd. 1855. 323 pp.

This is a capital story-book. Twenty-one short stories are given, and they are very entertaining. It deserves a place in every good juvenile library, and will be highly prized by our young friends.

PLAIN TALK AND FRIENDLY ADVICE TO DOMESTICS, with Counsel on Home Matters. Boston: Phillips & Sampson. 1855. 214 pp.

This little work is somewhat akin to the preceding, turning its attention to persons rather than things, and illustrates the proper manner of preventing or curing many evils, and how, by good manners, fidelity, etc., to rise in the esteem of others, and to secure a more desirable station in society.

THE COMPLETE WORKS OF WILLIAM SHAKESPEARE. Martin & Johnson, New-York.

Two more double numbers of this beautiful edition of Shakespeare have been laid on our table. They are illustrated with four admirable engravings. This is the most splendid edition of this work which has appeared in this country, while it costs less than several other editions. Price, 25 cents a number; 50 cents a double number. It is to be complete in 40 numbers.

CROTCHETS AND QUAVERS; or Revelations of an Opera Manager in America. By MAX MARETZEK. New-York: S. French. 1855. 346 pp.

Mr. Maretzek has a high reputation as a conductor of an orchestra, and this book entitles him to a reputation as a letter-writer that many an experienced author might look up to with a fond but hopeless gaze. The letters are admirably done. The exposures of the secrets of the opera house, as curious if not as dreadful as those of the prison house, are just the thing for after-dinner, or any hour when one needs something to keep him awake. It is one of the most entertaining of books. It paints men —living men—not the imaginary beings of the novelist, but the men we meet every day, here in New-York, on Broadway; and there is about it an air of good humor, even when ill blood might easily be pardoned, which is really refreshing. We shall henceforth be inclined to take off our hat to Mr. Maretzek, every time we meet him.

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This is a subject that comes home to every household, and to all ages and sexes. He who improves the culinary processes of any family, promotes health and improves the temper, and therefore materially affects the amount of domestic happiness. Mrs. Crowen knows well how to do this, and in this volume she tells others how to do so fully and in very appropriate terms. We commend the book to the attentiou of all our readers.

NEW MUSIC.

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List of Patents Issued

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G. W. Bishop, Brooklyn, improvement in marble sawing machines.

Ansel W. Porter, Little Falls, N. Y., improvement in hanging carriage bodies.

Hiram Abbott, Wakeman, O., improved method of upsetting tire, &c.

Chas. Rice, Boston, and S. H. Whorf, Roxbury, Mass., improvement in lasting and applying soles to shoes.

Sylvanus Sawyer, Fitchburgh, Mass., compound projectile.

Job Brown, Lawn Ridge, Ill., improvement in weighing attachment for faucets.

J. C. Day, Hackettstown, N. J., improved ring and gudgeons for bottle fastenings.

John Fouser, Philadelphia, improvement in supporting jacks.

L. B. Fisher, Branch Co., Mich., improvement in marble sawing.

Thaddeus Fowler, Waterbury, Ct., new method of separating pins.

John B. Hathaway, Millbury, Mass., improved rotary engines.

Eli Horton, Windsor Locks, Ct., improved lathe chuck.

W. B. Kimball, Peterborough, N. H., improved marble sawing machine.

Jean Pierrie Mollierre, Lyons, France, improved method of cutting boot and shoe uppers. Patented in France, Aug. 10.

V. P. Corbett, New-York, excluding dust from railroad cars.

Ransom Cook, Shelburne Falls, Mass., new method of boring implements.

Samuel Krauser and Christian Ritter, Reading, Pa., improved water meter.

Wm. C. Chipman, Sandwich, Mass., improvement in marble sawing.

Michael Bomberger, Hummelstown, Pa., new method of hanging window shades.

R. L. Nelson, Ocala, Florida, self-feathering adjusting tide wheel.

T. B. Markillie, Winchester, Ill., improvement in corn planters.

Joseph Morse, Woonsocket, R. I., improvement in throstle machines.

E. D. Curtis, Mt. Morris, N. Y., improvement in seeding machines.

Cornelius R. Wortendyke, New-York, raising ice from rivers, etc.

Nath. S. Saxton, Riverhead, N. Y., improved machines for adding numbers.

Barclay A. Satterthwait, Lima, O., new method of preparing artificial teeth.

Thos. Chope, Detroit, Mich., improvement in attaching shafts to axles.

D. W. C. Sanford, Cincinnati, O., improvement in refrigerators.

Loren J. Wicks, Paterson, N. J., improvement in straw cutters.

H. N. Sherman, Birmingham, Conn., new method of forming heads on bedstead screws.

Alfred E. Smith, Bronxville, N. Y., improvement in securing shafts to axles.

Geo. W. Hubbard, Middleton, Ct., improvement in marble sawing machines.

Chas. H. Johnson, Boston, improvement in Argand-gas burners.

Rudolphus Kinsley, Lynchburgh, Va., improved tobacco presses.

James A. Woodbury, Winchester, Mass., improvement in planing machines.

Chas. F. Warren, Malden, Mass., improvement in marble sawing machines.

Samuel Wetherill, Bethlehem, Pa., improved processes for making zinc white.

G. W. Bigelow, New-Haven, Conn., improvement in cutting teeth of gear wheels.

J. H. A. Blackmann, Ronsdorf, Prussia, improvement in locks.

L. S. Chichester, New-York, improvement in cotton gins.

D. W. Clark, Bridgeport, improvement in double acting pumps.

Edward Pierre Fraissinett and Henri Emile Roboul, of Route d'Orleans, Montrouge, Paris, France, for ticket holders. Patented in France Feb. 2, 1855.

T. Henderson, Lowell, machine for printing yarns and cloths.

T. P. Howell and N. F. Blanchard, Newark, improvement in treating leather for enameling.

D. W. Hughes, New-London, Me., improved method of attaching tops to seats of carriages.

A. A. Marcellus, New-York, improvement in potato diggers.

Jos. McCord, Philadelphia, policemen's rattles.

C. A. McEvoy, Richmond, Va., improvement in railroad station indicators.

John Phin, Rochester, improvement in gun locks.

Wm. F. & Chas. J. Provost, Selma, Ala., improvement in cotton presses.

C. Rice, Boston, and S. H. Whorp, Roxbury, Mass., improved machine for preparing leather for the manufacture of boots and shoes.

J. Reilly, Hart Prairie, Wis., improvement in harvesting machines.

F. Noette and A. Schmidt, Brooklyn, improved marble sawing machines.

M. W. St. John and I Brown, Leonardsville, N. Y., improved street-sweeping machines.

Gerard Sickles, Brooklyn, improvement in coal sifters.

G. H. Thomas, Kingston, Mass, improved method of inserting tubes in evaporating pans, etc.

L. Young, New-York, improvement in revolving measuring wheels.

H. Carsley, Lynn, assignor to himself and E. Brown, of same place, improvement in nutmeg graters.

F. Drew, South Boston, assignor to himself and S. S. Gray, of same place, improvement in lifting jacks.

L. Fingor, Boston, assignor to himself and L. Schell, of same place, filtering faucet.

C. W. Van Vliet, Fishkill Landing, assignor to C. Parker, Meriden, Conn., improvement in mill grinding coffee, etc.

E. Harmon, Washington, D. C., improved envelopes.

W. O. Hickok, Harrisburgh, improvement in mills for grinding apples.

Reuben W. Oliver, East Aurora, N. Y., improvement in road scraper.

John Allender, of New-London, Ct., for balance for detecting spurious coin.

Dennis S. Blue, of Fort Seneca, Ohio, for improvement in blacksmith's striker.

Pliny E. Chase, of Philadelphia, Pa., for improvement in steam heating apparatus.

Thomas H. Corbett, of Brooklyn, N. Y., for improvement in belt coupling.

H. H. Dennis, of Steam Mill, Pa., for improvement in fences.

Joel P. Heacock, of Marlborough, Ohio, for improvent in drilling and screw cutting machines.

Joel P. Heacock, of Marlborough, Ohio, for improvement in cooper's tools.

Peter H. Jackson, of New-York, for improvement in cat head anchor stoppers.

L. B. Jillson and George Sparhawk, of Lewiston Me., for improvement in bag looms.

John A. Krake, of Alden, N. Y., for improvement in the method of hanging the screens of winnowing machines.

Joseph Kleeman, of the city of Meissen, Germany, for improvement in the preparation of umbrella sticks, &c., of rattan.

Alfred Krupp, of Essen, Prussia, for improvement in cannon. Patented in France, December 16, 1847.

John S. Lewis, of Athol, Mass., for improvement in the mode of cutting the uppers of boots.

Leonard S. Maring of Fall River, Mass., for improvement in attaching casters to trunks.

Jean Pierre Malliere, of Lyons, France, for improvement in machines for rasping and dressing the heels and soles of boots and shoes. Patented in France, January 5, 1855.

Jean Louis Rolland, of Paris, France, for improvement in ovens for baking bread and other ailments. Patented in France, June 30, 1851.

George W. Stedham, of Vienna, N. J., for improvement in sewing machines.

Cyrus A. Swett, of Boston, Mass., for improved printing press.

Samuel E. Tomkins, of New-York, for improvement in metallic saddle trees for harness.

Nathaniel Waterman, of Boston, Mass., for improvement in feet-warmers.

Wm. Bennett, of Brooklyn, N. Y., assignor to the Union Indian Rubber Lamp Company, of New-York, for improvement in fluid lamps.

Design.—James O. Morse, of New-York, and J. W. Adams, of Lexington, Kentucky, for design for steam tube and hot air covers.

Thomas Batty, of Brooklyn, N. Y., for improvement in suspending ship yards.

Erastus B. Bigelow, of Boston, Mass., for improvement in cutting pile fabrics.

E. W. Bullord, of Hardwick, Mass., for improved mode of hanging window sashes.

Daniel Campbell, of Washington, D. C., for improvement in military saddles.

Thomas A. Chandler, of Rockford, Ill., for improvement in making plow mould boards.

John A. Cole, of Washington, D. C., for improvement in machines for sawing out tapering blocks of marble.

Alonzo R. Dinsmoor, and Levi J. Bartlett, of Salisbury, N. H., for improved instrument for chamfering the edges of shoe soles, &c.

Thomas A. Elden, of Westbrook, Me., and Wm. Thorn, of Hollisten, Mass., for improvement in the arrangement of flues and dampers of cooking apparatus.

Joseph T. England of Baltimore, Md., for improvement in railroad car coupling.

Peter Fairbain, of Leeds, and John Hargrave, of Kirkstall, in the county of York, for improvement in wool-combing machines. Patented in England, Nov. 6, 1852.

Henry Forncrook, of Elbridge, N. Y., for improvement in feet warmers.

Joseph Francis, of New-York, for improvement in military wagons.

Samuel H. Gilman, of New-Orleans, La., for improvement in bagasse furnaces.

Samuel Hamilton jr., of Tolland, Mass., for improved burglar's alarm.

Jesse W. Hatch, of Rochester, N. Y., for improvement in the machine for cutting out boot and shoe soles.

Horace L. Hervey, of Quincy, Ill., for improved burglar's alarm.

George A. Howe, of Worcester, Mass., for improvment in hand cotton pickers.

Matthias Keller, of Philadelphia, Pa., for improvement in cutting the fronts and back of violins.

Edward N. Kent, of New-York, for improvement in amalgamators.

Edward Kershaw, of Boston, Mass., for improvement in locks.

Hosea Lindsay, of Ashville, N. C., for improvement in pumps.

Timothy Bailey, Ballston Spa, improvement in knitting machines.

Alexander Barns, Ashtabula, improvement in mop heads.

Thos. R. Markillie, of Winchester, Ill., for improvement in spoke machines.

G. M. Moore and J. Newton, of Watertown, Ct., for improvement in machines for scouring knives.

J. H. Pomery, of Bloomington, Ill., for improvement in locks.

Isaac Rehn, of Philadelphia, Pa., for improved photographic bath.

James H. Sampson, of Grafton, Mass., for improvement in boot trees.

Charles Schinz, of Camden, N. J., for self-regulating hot blast for furnaces.

Nathan Simons, of Providence, R. I., for improvement in cloth stretching rollers.

John Tremper, of Philadelphia, Pa., for improved means of connection between regulator valve and governor's stem.

Daniel E. True, of Lake Village, N. H., for improved blind fastener.

Levi Van Hoeson, of New-Haven, Ct., for improvement in machines for paring and slicing apples.

Richard Vose, of New-York, for improvement in quartz crushing machines.

Moses D. Wells, of Morgantown, Va., for improvement in hand seed sowers.

R. C. Wrenn, of Covington, Ky., for improvement in machines for preparing cotton seed for planting.

John H. Gatiss, of Franklinville, Pa., assignor to Abraham Edwards, of Towanda, Pa., for improvement in water wheels.

John Taggart, of Roxbury, Mass., assignor to himself, and Vernon Brown, of Boston, Mass., for improved machines for channeling stone.

Charles C. Tolman, of Shelburne Falls, Mass., assignor to James Sargent and Dan P. Tucker, of same place., for gimblet.

Major B. Clarke, of Newman, Ga., for improvement in machinery for opening and feeding cotton to the gin.

Israel Amiss, of Philadelphia, Pa., for improved application of embossed veneers.

James Baxendale, of Providence, R. I., for improvement in machinery for folding and measuring cloth.

Henry E. Chapman, of Albany, N. Y., for improvement in boot and shoe peg cutters.

Charles T. Close, of New-York, N. Y., for improved fountain ink-stand.

Josephus Echols, of Columbus, Ga., for improvement in water gauges for steam boilers.

John S. Gallaher, Jr., and John W. Smith, of Washington, D. C., for improvement in gas apparatus.

P. G. Gardiner, of New-York, N. Y., for improvement in railroad car springs.

Gottlieb Graessle, of Hamilton, O., for improvement in tile roofing.

Sheldon S. Hartshorn, of Allensville, Ind., for improvement in buckles.

Jno. K. Harris, of Orange, Conn., for improvement in machines for raking and loading hay.

Benj. Hinkley, of Troy, N. Y., for improvement in bedsteads.

F. A. Jewett, of Abington, Mass., for improvement in the mode of attaching extinguishers to lamps.

Henry C. Jones, of Newark, N. J., for improvement in locks for freight cars.

James J. Johnson, of Alleghany City, Pa., for improvement in corn-shellers.

Gilbert D. Jones, of Jersey City, N. J., for improvement in sand-paper making machines.

Jean Pierre Molliere, of Lyons, France, for improvement in machines for cutting out, punching and stamping the soles and heels of boots and shoes. Patented in France, July 22, 1853.

Robert Prince, of Lowell, Mass., and Ambrose Lovis, of Boston, Mass., for improvement in processes for calico printings.

Geo. T. Pearsall, of Apalachin, N. Y., for improvement in sawing marble, etc., in taper form.

Joel W. Pettis, of Hillsdale, Mich., for improvement in packing pistons for steam-engines.

Atchison Queal, of Plymouth, N. Y., for impact water wheel.

Shepherd W. Reed, of Berkshire, N. Y., for improvement in carriage hubs.

Charles Rice, of Boston, Mass., and Sylvanus H. Whorf, of Roxbury, Mass., for improvement in machines for cutting articles from leather.

Isaac M. Singer, of New-York, N. Y., for improved machine for carving wood, etc.

Jeremiah P. Smith, of Hummelstown, Pa., for improvement in corn-shellers.

E. D. Leavitt, Jr., of Lowell, Mass., for improvement in slide valve for steam engines.

Francis Taylor, of New-York, N. Y., for improved piano-forte action.

Guilliame Henri Talbot, *of Boston,* Mass., for improvement in auger handles. *Patented in England,* Aug. 25, 1855.

Amasa S. Thompson, of Albion, *Pa., for* improvement in cutting cloaks.

Daniel Treadwell, of London, England, for improved manufacture of cannon.

Wm. M. Welling, of Brooklyn, N. Y., for improvement in devices for bleaching ivory.

Edward Weissenborn, of New-York, N. Y., for improvement in chain-making machines.

C. D. Wright, of Fort Atkinson, Wis., for improvement in rotary pumps.

John S. Martin, of Boston, Mass., for improvement in mosquito curtains.

Amos D. Highfield, of Philadelphia, assignor to himself and Wm. H. Harrison, of the same place, for method of adjusting circular saws obliquely to their shafts.

Jno. W. Haggard and Geo. Bull, of Bloomington, Ill., assignors to Bull, Haggard and Newsteter, of same place, for improvement in harvester rakes.

Wm. W. Wade, of Springfield, Mass., assignor to Wade and Burnham, of same place, for improvement in variable cut-off gear for steam engines.

Daniel Moore, assignor to Geo. S. Cameron, of Charleston, S. C., James H. McWilliams, of New-York, N. Y., and Daniel Moore, aforesaid, for improved machine for rubbing types.

Re-issues.—Jos. Guild, of Cincinnati, Ohio, for improvement in mortising machines; Patented Nov. 30, 1852.

Samuel Rockafellow, of Coatsville, Pa., for improvement in reaping and mowing machines. Patented July 3, 1855.

Designs.—Conrad Harris and Paul W. Zoiner, of Cincinnati, O., for design for parlor stoves to burn wood.

Conrad Harris and Paul W. Zoiner, of Cincinnati, O., for design for parlor stoves to burn coal.

Conrad Harris and Paul W. Zoiner, of Cincinnati, O., for designs for six-plate box stoves.

Conrad Harris and Paul W. Zoiner, of Cincinnati, O., for designs for cooking stoves.

Jonathan C. Brown, of Bristol, Conn., for design for clock frames.

Enoch Woolman, of Damaskville, O., for design for strap hinges.

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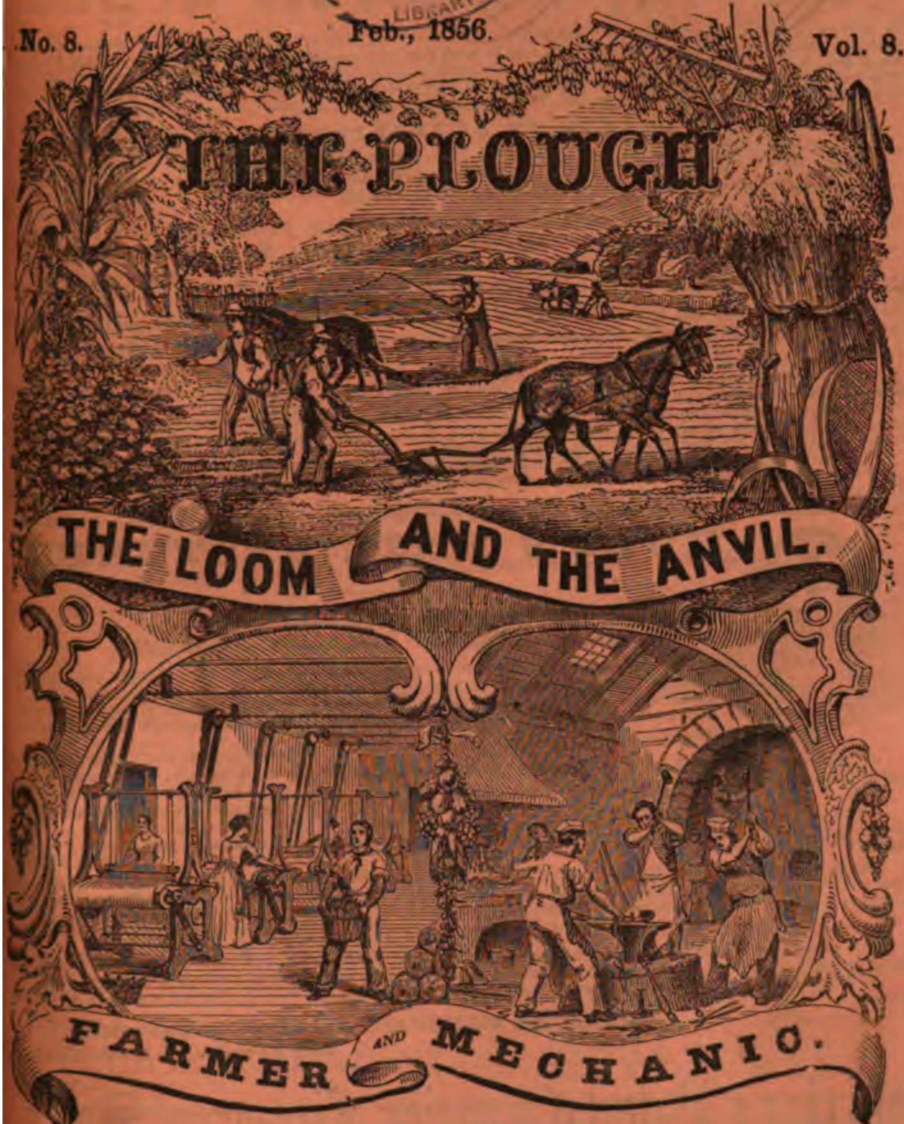

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The Plough, the Loom, and the Anvil.

Vol. VIII. FEBRUARY, 1856. No. 8.

AGRICULTURAL PRODUCTS AND PRICES.

The cause of the present high prices has been a subject of discussion in many quarters and by various interests. As many different conclusions have been drawn as the various prejudices or sympathies or whims of the writer would suggest. We do not purpose to assume the position of a disputant with any of these, except so far as the elucidation of the truth on this subject may place us in that position. We shall chiefly confine ourself to facts that cannot be well controverted. If the statements are not reliable, and can be shown to be incorrect, we shall be happy to furnish facilities for making known the mistake as extensively as possible.

We rely chiefly on the returns of the census. Our opinion of the correctness of these, so far as they are made up of thousands of details, often "contradictory and irreconcilable," our readers well know. So far as large and comparatively permanent operations are involved, we should not hesitate to abide by their authority. The returns with which we are here interested are partly of each of these classes.

Certain statements in relation to the production of grain crops in some of the States we cannot doubt are erroneous. For example: By the census of 1840, Kentucky produced more than 4,800,000 bushels of wheat, while by that of 1850 she grew only 2,142,000. Could there have been so much difference in the growth of wheat in these years? By the census of 1840 Ohio raised 16½ millions, and by that of 1850 only 14½ millions of bushels. Maine, by the former, grew 848,666 bushels, and by that of 1850 only 296,259 bushels of wheat. In some other States we find differences that cannot be regarded as probable. They may, however, be essentially correct, and the presumption no doubt is that, on the whole, the errors nearly balance each other, so as to give a sum total that is comparatively reliable.

We only add a single suggestion, before we exhibit our tables of the production of the chief articles of food. The community that does not produce more than it consumes is not prosperous. It must deteriorate. We have recently presented statements of the products of several States, per acre, and the inference is inevitable, from the facts elicited, that some sections of the country are actually and essentially impoverished by such cultivation. We now purpose to give a more extensive view in regard to the edible products of this country. Such statements will furnish a basis for important conclusions in reference to very grave discussions which are often presented to the public in periodicals and in speeches.

It is often said that present high prices are the result of an actual deficiency in the production of food. "The crops are not grown," and of course cannot be furnished. We shall see how much propriety there is in this supposition. With this intent, we first present a comparative view of the number of bushels of the chief crops of the kind described raised in the United States, as given in the returns of the census of 1840 and of 1850, and also of the amount of some others of the principal crops of the country:

	1840.	1850.
Corn,	377,531,875	592,071,104
Wheat,	84,823,272	100,485,944
Rye,	18,645,567	14,188,813
Buckwheat,	7,291,743	8,956,912
Barley,	4,161,504	5,167,015
Oats,	123,071,341	146,584,179
Total, bushels,	615,525,302	867,453,967
Potatoes,	108,298,060	104,066,044
Hay, tons,	10,248,108	13,838,642
Total No. of neat Cattle,	14,971,586	18,378,907
" " Sheep,	19,311,374	21,723,220
Bales of Cotton,	1,976,198	2,445,793

In estimating the relative sufficiency of these crops, as returned in 1840 and 1850, it must be borne in mind that during this period the population increased in the ratio of 35.87 per cent.

A comparison of these columns shows that there is an immense increase in the amount of Indian corn, being an excess of about 57 per cent., and a decrease in the quantity of rye and of potatoes. Of the general accuracy of these returns we have no doubt. But now we must descend to a few particulars, and learn other results that may have an important bearing in all these discussions.

We add also a statement of the production of the same crop in the different territorial divisions of the United States:

	Indian Corn or Maize.		Increase of population from 1840 to 1850.
	1840.	1850.	
New-England,	6,992,909	10,175,856	22.07
Middle States,	39,946,213	60,418,948	29.44
Southern "	94,998,255	117,572,608	18.58
S. Western "	89,893,973	122,637,185	47.89
Western, "	145,700,525	280,864,368	54.43
	377,531,875	591,663,915	

The tables which follow show the different quantities of grains raised in the six States most productive of the several kinds, by the census of 1840 and of 1850, the amount of the crop of 1840 to each person, and the increase of population in each State during that time. These tables will show how the production compares with the increased numbers to be fed.

The amount allowed by Tucker and others for the support of our population, including that required for seed and for domestic animals, is as follows: 85 bushels of corn, 28 bushels of wheat, and 25 bushels of other grains, to a family of five persons. These furnish the means for judging of the deficiency or surplus in any given State:

CORN.

	1840.	1850.	Amount of crop of 1840 to each person.	Increase of population.
Illinois,....	22,684,211	57,646,984	47½	78.81
Kentucky,..	39,047,120	58,672,591	50	25.98
Missouri,...	17,332,524	36,214,537	4½	77.75
Indiana,....	28,155,887	52,964,363	41	44.11
Tennessee,..	44,986,188	52,276,223	54	20.92
Ohio, ..	33,668,144	59,078,695	22	30.33
	185,824,074	316,853,393		

WHEAT.

Ohio, ...	16,571,661	14,487,351	11	30.33
Pennsylvania,.	13,213,077	15,367,691	7½	34.09
Indiana,......	4,049,375	6,214,458	6	44.11
New-York,....	12,286,418	13,121,498	5	27.52
Illinois,.......	3,335,393	9,414,595	7	78.81
Virginia,......	10,109,716	11,212,616	8	14.67
	59,565,640	69,818,189		

OATS.

	1840.	1850.	Increase of population.
New-York,.......	20,675,847	26,552,814	27.52
Pennsylvania,....	20,641,819	21,538,156	34.09
Ohio,............	14,393,103	13,472,742	30.33
Virginia,.........	13,451,062	10,179,144	14.67
Illinois,..........	4,988,008	10,087,241	78.81
Kentucky,........	7,155,974	8,201,811	25.98
	81,305,813	90,081,408	

IRISH AND SWEET POTATOES.

New-York,.......	30,123,614	15,403,997	27.52
Georgia,.........	1,291,366	7,217,807	31.07
Pennsylvania,.....	9,535,663	6,032,904	34.09
Alabama, ...	1,708,356	5,721,205	30.62
N. Carolina,......	2,609,239	5,716,027	15.35
Ohio,............	5,805,021	5,245,760	30.33
Mississippi,.......	1,630,100	5,003,277	61.46
	52,703,359	50,336,977	

HAY (TONS.)

Vermont,........	836,739	866,153	7.59
New-York,.......	3,127,647	3,728,797	27.52
Pennsylvania,.....	1,311,643	1,842,970	34.09
Maine,...........	691,358	755,889	16.22
Ohio, ...	1,022,037	1,443'142	30.33
Massachusetts,....	569,395	651,847	34.81
	7,558,219	9,288,598	

Taking the usual estimate, already stated, for the supply of the entire population of the country, we find an excess of 196,109,229 bushels of corn and 16,700,674 bushels of other grains, and a deficiency of 12,393,356 bushels of potatoes. Hence it is obvious that much more than sufficient is grown for the food of the country. For this allowance appropriates not only the necessary amount of seed and a due proportion for domestic animals, but also one-sixteenth of the crop for exportation. Now what amount has been exported, and what has been destroyed in the still? We are under no special obligation to inquire into these matters, so far as the question of short supply is concerned; for this is a matter of choice and not of necessity and were half the country dying of famine, distillers would buy and convert into these noxious beverages as much as they could with a decent profit, without regard to any other consideration. Some distillers and some exporters might be restrained by humane considerations, but we think this number in either class would be a very small proportion of the whole.

We have already shown that food enough is raised to supply all the people. The crops of the present year are much larger than in 1850.

Since the preceding was written we have seen the following estimate of the crops of 1855, by Mr. D. Jay Browne, the experienced and accomplished Superintendent of the Agricultural Bureau at Washington. No one has better facilities than he, and no one will be likely to be more accurate. He regards these estimates rather within than over the truth, both as to quantity and value:

VEGETABLE PRODUCTS OF 1855.

	Valuation.	Total value.
Indian corn,	600,000,000 bushels, at 60 cts,	$360,300,000
Wheat	165,000,000 bushels, at $1.50,	247,500,000
Rye	14,000,000 bushels, at $1.00,	14,000,000
Barley	6,600,000 bushels, at 90 cts.,	5,940,000
Oats	170,000,000 bushels, at 40 cts,	68,000,000
Buckwheat	10,000,000 bushels, at 50 cts,	5,000,000
Potatoes (all sorts)	110,000,000 bushels, at 37 cts.,	41,250,000
Flaxseed	58,000 bushels, at $1.25,	72,500
Beans and peas	9,500,000 bushels, at $2.00,	10,000,000
Clover and grass seed	1,000,000 bushels, at $3.00,	3,000,000
Rice	250,000,000 pounds, at 4 cts.,	19,000,000
Sugar (cane)	505,000,000 pounds, at 7 cts.,	35,350,000
Sugar (maple)	34,000,000 pounds, at 8 cts.,	2,720,000
Molasses	14,000,000 gallons, at 30 cts.,	4,200,000
Wine	2,500,000 gallons, at $1.00,	2,500,000
Hops	3,500,000 pounds, at 15 cts.,	525,000
Orchard products		25,000,000
Garden products		50,000,000
Tobacco	190,000,000 pounds, at 10 cts.,	19,000,000
Cotton	1,700,000,000 pounds, at 8 cts.,	136,000,000
Hemp	34,500 tons, at $100,	3,450,000
Flax	800,000 pounds, at 10 cts.,	80,000
Hay and fodder	16,000,000 tons, at $10,	160,000,000
Pasturage		143,000,000

DOMESTIC ANIMALS AND ANIMAL PRODUCTS.

	Valuation.	Total value.
Horned cattle	21,000,000, at $20 each,	$420,000,000
Horses, asses and mules	5,100,000, at $60 each,	306,600,000
Sheep	23,500,000, at $2 each,	47,000,000
Swine	32,000,000, at $5 each,	160,000,000
Poultry		20,000,000
Slaughtered animals		200,000,000
Butter and cheese	500,000,000 pounds, at 15 cts.,	75,000,000
Milk (exclusive of that used for butter and cheese	1,000,000,000 gallons, at 10 cts.,	100,000,000
Wool	60,000,000 pounds, at 35 cts.,	21,000,000
Beeswax and honey	16,000,000 pounds, at 15 cts.,	2,400,000
Silk cocoons	5,000 pounds, at $1,	5,000

A deficiency of supply is not, then, the cause of extravagant prices. We must look a little further for this cause. With this view let us make the following inquiry:

When will a merchant export our domestic productions? The answer, as already intimated, is, When he can buy at prices which, with the cost of freight, insurance, commissions, exchanges, &c., &c., will give him a handsome net profit. In other words, the price abroad, compared with the price at home, determines this.

But prices "at home" are not uniform. When corn is worth a dollar in New-York it is worth only half a dollar, perhaps, in Tennessee or North Carolina, and so on. Under such circumstances the cost of transportation is a controlling item, both as to price and as to its direction. The quantity exported will be affected by the amount of these various items of cost, and not merely by the amount in the country. It is nonsense to pretend that there is not an excess of all kinds of provision except potatoes; and this deficiency is the result of disease, and not the consequence of any peculiar condition of the markets of the world. Besides, the people have become accustomed to substitutes for this crop, so that the want of this is not sensibly felt. This view shows the importance of our railroads and other internal communications which tend to equalize prices even in distant parts of the country.

Nor is it true that foreign crops are less than the average, but the reverse. The crop of Great Britain will be found on another page. The grain crop of France is sufficient not only for their own population, but for an additional population of 600,000. An estimate we have lately seen is 8¼ bushels of wheat to each inhabitant. In Germany and other countries there is no unusual scarcity.

Hence we might infer that there is not an excessive amount of exportation now going on, except so far as prices are affected by the Eastern War. The year 1854 was somewhat remarkable for the amount of wheat exported. Official returns give us the following amount of exports of this grain:

1851	13,948,499	bushels.
1852	18,680,686	"
1853	18,958,993	"
1854	27,000,000	"

This excessive exportation no doubt affected in some degree the price of flour and wheat through the past year. But with the supposed product of 1855, even that amount of wheat may be exported, without leaving a short supply at home.

But there is another part to this story. We are so much accustomed to the use of various kinds of grain that if wheat or any other crop is excessively high, substitutes can be easily found quite satisfactory to the most fastidious. How various are the modes of preparing the flour of maize; and he who cannot relish these kinds of food, when properly prepared, must have a very singular taste. This substitution diminishes the demand and affects the price.

But we again repeat, in this connection, that there has not been a lack of wheat during the year 1855, and that so large quantities have been in the control of speculators that they have had very hard work to satisfy the people that the country was in a starving condition, so as to secure such exorbitant prices.

In this connection we may refer to the record for evidence that our merchant princes are somewhat reckless in the extent of their speculations, venturing very great risks in the hope of a fortunate turn of the wheel; and the presumption is that ere long the tide must turn against them, or—the only alternative—importations must cease for a time. Since the warehouse system went into operation, the amount of goods in the several warehouses has been constantly increasing—a conclusive proof that importations are excessive. More goods are imported than the market requires. The importer is not obliged to pay the duties, which amount to many millions, till they are removed from the warehouse, but he does lose the interest of his money. Thus the following are the amounts in warehouses in certain years:

1849	$47,970,658
1850	57,052,157
1851	67,516,888
1852	70,901,028
1853	96,916,060
1854	105,762,014

Our exports of domestic goods and manufactures have also increased, but not to the extent of the increase of imports here indicated.

Our conclusion from this extensive view is that prices are *high from the wild spirit of speculation.* Under ordinary circumstances this might not be possible. But the "famine" not quite forgotten, the Crimean war, the "drought," "half a crop," &c., &c., a terrible array of horrid things have been made to play upon the intelligence of the people, who knew that all these things did really exist somewhere, and to some extent, and they were led to believe the whole story.

But even under all this pressure it has been in the power of any community to buy at very reduced rates, simply by excusing one or two middle men from playing their part in this great game on the credulity of the people. Have not unions furnished their members with flour at greatly reduced prices? Have not producers every day of the year sold at rates quite as low as in the average of the last ten years? We know that this is true. To undertake, therefore, to refer the effects of all this reckless trade to European wars, or droughts, or any other natural cause, is only to play into the hands of monopolists and gamblers. The game is a great one, involving millions. It is for the people to say when it shall terminate.

To Prevent Trees from Splitting.—For preventing forked trees from splitting under weight of fruit, Isaac Lewis, of Hopkinsville, Kentucky, has given us his plan. "My plan," he writes, "which I have followed for thirty years, is this: When I find a forked tree that is likely to split, I look for a small limb on each fork, and clean them of leaves and lateral branches for most of their length. I then carefully bring them together, and wind them round each other. In twelve months they will have united, and in two years the ends can be cut off. The brace will grow as fast as any other part of the tree, and is a perfect security from splitting. I have them now of all sizes, and I scarcely ever knew one to fail to grow."

AGRICULTURAL STATISTICS OF THE UNITED KINGDOM.

The following table, which we compile from the Belfast (Ireland) *Mercantile Journal and Statistical Register*, is an estimate of the extent of land in the United Kingdom under the principal description of crops in 1850–'54. It exhibits the acres in crop, total produce, produce under deduction of seed, and total value of crops:

Crop.	Acres in crop.	Total produce. Quarters.	Produce under deduction of seed. Quarters.	Total value.	
			ENGLAND.		
Wheat	3,000,000	11,250,000	9,642,857	£20,696,428	5
Barley	1,000,000	5,400,000	4,628,572	6,248,572	4
Oats and Rye	2,000,000	9,000,000	7,714,286	7,714,286	0
Beans and Peas	500,000	1,875,000	1,607,143	2,250,000	4
Potatoes, turnips, rape,	2,500,000	....	......	26,000,000	0
Clover	1,300,000	....	....	....	
Fallow	800,000	....	....	....	
Hops	50,000	....	....	780,000	0
Gardens	250,000	....	... .	3,750,000	0
Total	11,400,000	27,525,000	23,592,858	£67,439,826	13
			SCOTLAND.		
Wheat	350,000	1,137,500	947,917	£2,038,021	11
Barley	450,000	1,800,000	1,500,000	1,950,000	0
Oats	1,200,000	6,000,000	5,000,000	5,000,000	0
Beans and peas	50,000	150,000	125,000	175,000	0
Fallow	100,000	....	....	....	
Potatoes	200,000	....	....	....	
Turnips	450,000	....	....	7,700,000	0
Clover	450,000	....	....	....	
Flax	5,000	....	....	75,000	0
Gardens	35,000	....	....	525,000	0
Total	3,290,000	9,087,500	7,572,917	£17,463,021	11
			IRELAND.		
Wheat	400,000	1,200,000	1,000,000	£2,000,000	0
Barley	320,000	1,120,000	933,334	1,119,999	12
Oats	2,200,000	11,000,000	9,165,667	9,166,667	0
Potatoes	1,400,000	....	....	11,200,000	0
Fallow	300,000	....	....	....	
Flax	140,000	....	....	2,100,000	0
Gardens	25,000	....	....	300,000	0
Total	4,785,000	13,320,000	11,100,001	£25,886,666	12
Grand total	19,475,000	49,932,500	42,265,776	£110,788,974	16

1. Consumed by Man.—Wheat, 15,500,000 quarters; oats, rye, and maslin, (a mixture of rye and wheat), 10,650,000 quarters; barley for malting, food, etc., 6,000,000 quarters; beans and peas as meal, 700,000 quarters; total quarters, 32,850,000.

2. Consumed by the Lower Animals.—Corn, principally oats, used in the feeding of horses and other animals, in distillation, manufactories, etc., 16,320,000 quarters; total consumed by man and the lower animals, etc., 49,200,000 quarters.

It is seen from the former estimate that the corn produced in the United

Kingdom, applicable to consumption, amounts to only 42,265,770 quarters. But to this has to be added foreign corn annually entered for consumption at an average of the seven years ending with 1852, viz.: wheat and wheat flour, 4,231,185 quarters; barley, 870,786 quarters; oats and oat-meal, 1,162,546 quarters; rye, 99,510 quarters; peas and beans, 565,759 quarters; total quarters, 6,929,786; total consumption, 49,196,556 quarters.—*Merchants' Magazine.*

THE TRUE POLICY OF THE SOUTH.

[The sentiments we expressed in our last issue, as in former numbers, are powerfully sustained by the following extract from the Austin (Texas) *State Gazette*, and which is copied into *De Bow's Review*. We cannot see how the South can be ignorant of their possibilities, or knowing them, neglect them much longer.—Ed. P. L. & A.]

"In our issues of the past two weeks we endeavored to show that the population and wealth of the Northern States have resulted from their manufactures and internal improvements, and that the comparative weakness of the South has resulted from the want of them. We believe that our readers who have read those articles have come to our conclusions upon the subject. Who believes that the State of Massachusetts would have, on the small extent of 7,500 square miles, one million of population; that her real estate would, in 1850, have been valued at $349,129,932, but for her manufactures, which, at that time, gave employment to 162,928 of her people, and her railroads penetrating into every part and portion of the State! In consequence of the demand for the necessaries of life, created by this aggregation of people, engaged in manufacturing, internal improvements, and the various pursuits incidental to and dependent upon them, the Massachusetts farmer will spend three hundred dollars in removing the rock and stones from a single acre of land in order to cultivate it, and finds it a profitable investment.

Reasoning, from cause to effect, of the future by the past, it will be easy to demonstrate the consequences of an extensive system of manufactures and internal improvements in the South, not only upon our own section of the Union, but upon the North and also upon Europe.

As in the Northern States, manufacturing towns and villages would spring up on all our streams capable of running a mill; employment would be given to millions of operatives, cities would grow up at the termini of our railroads, and every depot would become a considerable town or village; hundreds of other occupations and pursuits would result, giving profitable employment. These things would again act upon the agricultural interests of the country, by affording a demand for the necessaries of life, and a home market for our great staples, and the facilities for cheap and rapid transportation; the products of the farmer and the value of real estate would be immensely increased.

Our commerce would undergo a perfect revolution. We now export the raw material, which is manufactured in New-England and Europe, and enters into the clothing of a large proportion of the world. We would then export the manufactured fabric, having in our own hands a complete monopoly. We now furnish two-thirds of the exports of the United States, and have permitted northern capitalists, factors, and brokers, to subject us to tribute, in forcing those exports through their hands, instead of allowing them to pursue a direct and natural course. Our exports form the basis of two-thirds of the imports of the Union, which are landed in northern cities, and enriching them at our expense. We would, then, by exporting the manufactured article, and manufacturing a large amount of what we now import, redeem ourselves from our present vassalage and thraldom.

The millions now paid by the importing merchant by way of tariff, and which is repaid to him with a per cent. by the Southern consumer, would be cut off, and cease to be an everlasting drain upon the currency of the South.

The tide of European emigration would be diverted from the North to the South, and the millions of money and thousands of operatives now annually arriving there would be invested and employed here.

Let the South but adopt a system of manufactures and internal improvements to the extent which her interests require, her danger demands, and her ability is able to accomplish, and in a few years Northern fanaticism and abolitionism may rave, gnash their teeth, and howl in vain.

The effects upon the North would be equally striking. The South can manufacture cheaper than the North, as we design to show hereafter. We would then produce those articles of home consumption which she now sends us. Southern manufactures would be able to enter the markets of the world, and undersell those of New-England and Great Britain; and that fact once demonstrated, the increase of our production would be commensurate with the wants of the world. The millions which the North annually receives from the South would be cut off. She would no longer be able to levy tribute upon us.

The whole revenues of our government now paid by the Southern consumer, but collected and disbursed at the North, would be levied more justly and distributed more equally.

Let northern folly, bigotry, and intolerance drive the foreign emigrant, the naturalized citizen, and the Roman Catholic from amongst them, it is the true policy of the South to receive them, granting them all the privileges extended to them by the Constitution and laws of our country. They will swell our population and increase our ability to defend ourselves against abolitionism and free soilism, which are but the correlatives of Northern Know-Nothingism.

The effects upon Europe, and particularly upon Great Britain, would be equally striking. Our Northern manufacturers are now able to enter into the markets of the world, and undersell those of Great Britain. The Southern manufacturer could do it with more ease. In time, instead of shipping three millions of bales of cotton to Europe to supply her manufactures, as would ship that amount of fabrics. Our facilities for manufacturing cheaper would enable us to undersell and monopolize the market; this would draw the European operatives here, who could not be as profitably employed there. The consequences to European, and particularly to British manufacturers, can easily be perceived; they would be crippled, if not prostrated."

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

SOUTHERN PRODUCTIONS.

COTTON PATCH, Dec. 21, 1855.

DEAR SIR:—With many thanks for your kind notice of me on page 259 in your leader for November, which I have only this night cut the leaves and hastily glanced over, I beg to say a little.

I do not like comparisons. I less love that spirit that leads to bring one portion of our country antagonistic to the other. Some one said long ago, "Comparisons are odious." Certainly they lead to unkind feelings. What matters it if the little State of Rhode Island does make more than South Carolina? I very much query whether anybody in that dear old State sleeps less or eats less if knowing or not knowing this to be true.

My own opinion is, that no country does wisely when it relies upon any one article, or even is bound to trade at any one point. I therefore advocate some diversity, and urge manufactures as a part of our *business*. Had I to choose agriculture for my brethren of this State, or manufactures, or trading, I should unquestionably, without a moment's hesitation, choose agriculture. I speak, nor write, nor act as will please the mass; I give my opinions not intending offense, but I know many will shrug the shoulder. I hope that agriculture will ever be the leading business in the South. I hope before other pursuits become paramount that my day will have been long past. If the South would diversify labor to a greater extent, we would certainly be more independent. As to the matter of dollars and cents, it comes not into my calculation, farther than as secondary, in providing necessaries, comforts, luxuries in a small way and improvement in its best phase.

But, sir, I advocate fostering our own mechanics and artizans, schoolmasters and preachers, make a part of our clothing, and shoes, and hats, and so on to the end of the chapter, even if it includes making "rolling-pins" and "axe-handles," raising mules, etc. Should we only do this to an extent of 33⅓, we will thus be able to withstand pressures and not be driven to the wall. If I make ⅓ or ⅔ of the pork I need, I can pick my time to buy the balance, and thus with all else. I contend every country should do this to a greater or less extent. My friends—many of them—have held it unwise to thus enter into competition with those who buy our cotton. They say, if we make everything we want, no one will buy our cotton. Very true, perhaps, but we cannot make all we want; we must have a great deal after we have done all we can.

But, another matter as regards these comparisons. Admit that my land does not produce a per acre yield as it did in 1835, does it prove anything in favor of increased cost of production? Suppose some calculator makes cost of production to be 8 cents a pound, does even that prove we are getting beautifully smaller day by day? Cotton costs me 8 cents and I sell at 8 cents, and pay cost of selling, a part at 7 cents and so on,—figures lie not,—yet property is being rapidly accumulated all around me by cotton planting alone.

Let us look at the figures and facts. In 1830 to 1835, a crop of 15 bales per hand never entered into the heart of man to hope for. I know the rich lands of the cotton region. Eight and ten bales was a matter of doubt, many living within 20 or 30 miles of the "Swamp" did not believe it. Now we can turn out our 10, 12, 15 and 18 bale planters. Suppose my lands make only now an average of 1000, whereas in 1830 they made 1500, what does it prove? In 1830, I planted 6 and seldom 8 acres, worked as hard, aye, harder, than now with my 10 to 12. A full crop then was 6 or 7 bales, now I do not regard 8 bales a full crop, and more corn made too. Again, my friend, Dr. M. or Dr. B. or Col. D., etc., who make 1000 to 2000 bales, they make at 8 cents and sell at 7, losing 4 to 8 or 10,000 per year, yet with proceeds of crop invest 10 or 20 or 30 or 40,000 per year. I have cyphered up the cost of raising a hog or a colt, and lo! the hog or colt would eat its head off every year. I have cyphered up the cost of raising a negro from babydom up to 21 years, and find doctor's bills—they are longer and sharper than musquitoes—and clothing, and nursing, and feeding will eat up a dozen babies; but when I see my woman seamstress—who has been with me since my boyhood, and count up her children, worth in cash say $3000, with her service for some thirty years,* I come to the conclusion that I am a badly broke man, even with enough around me. It matters not to me what Rhode Island, or Illinois, or Connecticut, or anywhere else makes. I only ask of one and of all to let us be. I hope for them as much happiness as I know I enjoy. I am a Southerner by birth and attachment. "I would not live elsewhere," yet I have no desire to injure, or see injured, any part of our country. If we are not so rich, we are as content.

Yours, as an American, P.

ERRATA 27th page, 4th line from bottom,—on an *old* settled plantation. Last line in paragraph before last—long *shaves*. Commission merchants charge 10 per cent. interest—7½ for accepting, and 2½ for advancing; they pay 6 or 7 perhaps—this is long, rough and tough shaving, but all our own fault.

NOTE.—The object we have in view in setting before one section of country what is done in another, in the way of valuable products, is for the purpose of showing that there is a better way. If a section of a hundred square miles makes more money than another of a thousand, the best way that we know of to bring up the latter to proper effort is to show them how much better others do than they, while they can do as well as anybody. We have yet to learn why this is not a legitimate and effective kind of argument.—ED. P. L. & A.

SOUTHERN PICTURE—CROPS—POAGUE'S WATER PIPES.

NEAR BROWNSBURG, Rockbridge Co., Va.,
25th December, 1855.

TO THE EDITOR OF THE PLOUGH, THE LOOM AND THE ANVIL:

DEAR SIR:—The numbers of your valuable agricultural journal for October and November did not come to hand, and I supposed it to be discontinued.* The December number reached me a few days since, and I now suppose it to be maladministration in the post-office, as our Post-Master General has been often, no doubt, imposed on, and many good post-masters have been turned out for daring to think for themselves and vote like freemen, and their places filled by men incompetent to discharge the duties of the office. The consequence is confusion, and great irregularity in our mail receipts. I could state a strong case of this kind, where eight or ten individuals succeeded in turning out a most reputable, gentlemanly man, for no other reason than that he voted with the American party, when nineteen-twentieths of the community petitioned that he should be continued in office, after it was known a secret clique were plotting his removal. But enough of this. We are reaping the fruits of maladministration in the distracted proceedings of the members elect to our present Congress.

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* A few of my first years, when she was 17 to 25, she was a field-hand, and made her 6 bales.

Permit me to present to you the compliments of the season, and to wish you a merry Christmas and a happy New-Year! If the weather is with you as it is with us, it is gloomy enough. We have had no snow up to this day, with but little cold weather. The 23d of December was almost as balmy as May, the mercury standing 53° at daylight. Yesterday was cloudy and rainy, and to-day no better. It is now noon, and raining fast, with some fog. There has been but little feeding of stock cattle. Sheep require no attention, further than soiling. The season for killing pork and beef for our next year's home consumption has nearly gone round, and with our corned-meat houses well stored, and with a general good supply of money, if not all the comforts of life, we may at the close of another year render up to the Father of our spirits, and the Giver of every good gift, the homage of grateful and thankful hearts, for the many blessings which God in his goodness has vouchsafed unto us as a nation and a people. True, a small portion of our State has been sorely afflicted, but has it not shown and brought forth the sympathies and alms of a great and good people throughout the length and breadth of our land? May God be praised for his goodness unto us for the past year, for his blessings have been many!

This is a high day with our servants. They are as joyous and happy in preparing their Christmas dinner as if they had corn to sell. Could your fanatical zealots see their shining happy faces and white teeth, as they pass around the merry joke and Christmas song, they would be more sparing in their calumnies against the South; and I will venture my reputation on it, a better fed, better clothed, and, as a general thing, a more contented working population than our servants are, does not exist in the United States, or anywhere else, than is to be found in the valley of Virginia.

The corn crop of the season has been very good, and almost every farmer has a surplus. There will be many fine beeves fed in our valley this winter. The crop of wheat was short, and is pretty well ground out. The quality was good, but in many places did not reach half a crop. The oats and rye crops were not abundant, but will be quite ample for home consumption. Pork was not plenty, but was well fatted, and will be of fine quality. All culinary vegetables plenty. Apples a fair crop, but fell off early, and incline to rot.

I made a fine crop of corn this year from a piece of up-land of medium quality. It was a clover bog of three years standing, the clover pastured off; the soil a sandy loam; the land was ploughed in the winter; the ground was harrowed in April, laid out four feet wide, and planted two to three grains in the hill, two feet apart. (It would have been better to have had one stalk at a place, nine inches apart.) The stand was pretty good, but in some places was too thick. As soon as the corn was well up, a coulter was run next the plants, to the depth of ten inches. The cultivators followed the coulter, giving the field two dressings; and a part of field was gone over the third time with cultivators. The wet season now set in, and two-thirds of the field received no further work than going over twice with the cultivators. The field (about twenty acres) averaged about fifty bushels per acre. This was a fine crop for the labor bestowed on it, the corn being ten to twelve feet high.

I will now give you some account of a cheap, and, as I conceive, most excellent water-pipe, introduced in our County a few years since by I. B. & W. F. Poague, of Rockbridge Co., Va.

I had the water conveyed to my house last spring, a distance of four hundred yards. The ditch was cleaned out by my hands in April, at a depth of two feet, where rock did not interfere. I procured one hundred bushels of cement, which was furnished by Messrs. Poague at the kilns for twenty cents per bushel; transportation by my team worth about twelve cents per bushel. Messrs. Poague's hands commenced work on Monday, and in four days the pipe was laid, four hands laying one hundred feet each day. The pipe was moulded in the ditch, and is composed of one-half hydraulic cement and one-half pure sand. About half-bushel of each is mixed together by two men, and as soon as properly worked, is laid down in the mould with trowels. If the weather is warm, and the water used from a branch, it will set in ten to twenty minutes. The rod, seven feet long, is turned in the cement before it sets, to keep it from sticking, and as soon as the mortar becomes hard is drawn out, the moulds uncased, and removed for another joint.

My spring-house adjoins my house, and we have not to go out of doors to get water in bad weather, but go from the kitchen, under a covered way five feet, into the spring-house. Here the water falls about two feet into hydraulic cement troughs, built across one end and one side of my spring-house, the depth of water being six inches where it enters, and ten inches where it discharges through the wall into a beautiful basin or pool, holding six or seven hundred gallons; thence passing across my yard in a ditch into my orchard. Messrs. Poague's bill for troughs and four hundred feet pipes, 1¼-inch calibre, was $100. Cost of spring-house $125; and I have what I would not be deprived of for $1000.

Messrs. Poague having sent me one of their handbills, I enclose it to you, and entirely concur in what is therein stated.

Your obedient servant, &c., HENRY B. JONES.

SANITARY EFFECTS OF CHARCOAL.—As an illustration of the sanitary powers of charcoal, and the extraordinary energy with which it acts upon the gases, thus furnishing a new power for removing the agents of disease, etc., Dr. Stenhouse has exhibited in London a machine showing extraordinary deodorizing and disinfective powers. An atmosphere rendered highly offensive by putrefactive decomposition going on within the chamber in which it is confined, is drawn through charcoal filters, by means of a rotating fan machine, and is passed into an apartment adjoining. Although this air is disgustingly fœtid, it flows out into the room perfectly free from smell. This experiment, though it exhibits no new property of the charcoal, places the fact in a strong light, and may lead to most important usefulness.—*Horticulturist.*

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* Our friend's name will be one of the last we shall voluntarily "discontinue," and if any number is not received, he, and others also, are requested to make it known to us. We can generally supply them forthwith.—ED. P. L. A.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

PLANTATIONS IN THE SOUTH.

[The writer begins by some suggestions in reference to the "M. D." of the tourist author of "Inside View of Slavery," and considers it very properly of little value in such a connection, and then proceeds to speak of the actual condition of the industry of the South, as follows.]

——, Miss., Dec. 24, 1855.

As to "inferior tools," "rotation," or the culture pursued, we ask the thoughtful readers of the Northern States, if we could not point to farms even in the great and improving States of New-York or Massachusetts where there is the very worst sort of economy pursued. There are men who realize more money to capital than in most portions of our land who have poor implements and know nothing of rotation. They laugh at "modern improvements." Is this not so everywhere? We in the *South do not manage* as economically, as wisely, on the whole, as do our *Northern brethren*, we acknowledge. We would have the South as liberal in *good implements*, as generous in feeding her soil, as she is kind and hospitable to her visitors. We dare not put in any plea of abatement when our dear native land is in fault. All thinking people will know that the time must come when we must attend to our planting matters more systematically, artistically and scientifically. It is necessity forces men to labor, to improve. We are, by the fiat of the Most High, to earn our bread by the sweat of our brow; yet when land will produce such by but little sweat, depend on it man will not sweat much.

When traveling west, some twenty years ago, we saw so many of the population in bed in the coolest part of the houses, that we thought it "dreadful sickly," and spoke of it. Our journey was in June and July, and we were told that the people were only taking a comfortable nap in the hot weather. There is felt the same necessity of economy, toil and management in many portions of the South that is said to be in former days among the island planters of the Gulf. The day of action, of progress, is even *now*—not at hand, nor near at hand. Many are forced to attend to drains, horizontalizing, ditching, manuring, rotation, etc. And when the spirit is up as in New-York and Massachusetts, you will see deeds as worthy of the South as at Chepultepec, Cerro Gordo, Buena Vista, in the Halls of Congress, or elsewhere.

We do not compare our talent, or riches, or worth, or anything with any other people. We complain of none. There are some of us here whose great grand-sires, (or, perhaps, as in one case, g. g. g. grand-sire,) came from Wales, or England, or Ireland, or France, and settled in the South, but there are many here from the North and East and West and abroad, as well as the South, and we soon fall into the same way. All that we claim, being of similar origin, is,—give us the same objects, and we can evince talent and energy and zeal. The time has been when savans held that the South would depreciate wool, color of skin, intellect and so on; but that day is past. The South has sent out proof to the contrary.

Send a practical man to a well-ordered cotton or sugar or rice plantation, give him time to examine the internal economy, and let him examine the best. Go West and examine the best hemp farms and stock farms. Then visit the best at the East or North, and you will see not much difference after all.

To-day we can show you white single hyacinths, tea-roses, spirea, etc., in bloom, cotton leaves green, and our mules not yet housed for the winter. An M.D., who would be traveling through in the cars, or otherwise, would pronounce it bad economy, because horses in Dutchess Co., N.Y., must be paired on the 24th of December.

Our houses have no preparation for winters, they are for summer. If the South could be entreated to arouse herself we would entreat; if she could be abused to it, we would abuse, though we had to affix two rattles to our

P.

[We are disposed to add a word to the preceding expressions of opinion by our valued correspondent. We are quite certain he is right when he says, "it is necessity that forces men to labor to improve." But we doubt not our friend also would have added, had his object led his thoughts in that direction, that when present necessity does not urge us to effort, the offer of valuable profits will be efficient in exciting us to labor diligently and wisely. Give the North or the South a convenient and ready market for her agricultural products, and those products will be raised. The best and only way of introducing wholesome improvements is to satisfy the landowner that those products will pay for the exertion and the expense. Hence the necessity of variety of employment, that all kinds of producers may find, near at hand, consumers who will buy. It is in vain to preach modern improvements to those who cannot produce without great effort and at the same time know not what they could do with their products, or what they would sell for, when ready for the market.—Ed. P. L. & A.]

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

AGRICULTURE IS KING.

TO THE EDITOR:

In your periodical for December last is an article, the first in that number, with the title "Commerce is King,"—a title to which, with all due deference to other opinions, it must be allowed by many it has no claim. This idea, like many others, is a sort of modern adage, which the history of the past and present proves to be false.

That commerce has its advantages we are willing to admit, but that it ever has been, or can be the basis, the pristine cause of national prosperity, is a fallacious impression. It may with greater propriety be termed the handmaid, the attendant upon agriculture, for the disposal or removal of a surplus produce. Wise legislators have given it their protection. It is the only means by which a nation can repair the waste and ruin of war. Yea, far better that a whole fleet should rot in the harbors than our acres of land should lay unbroken and unsown.

In reviewing the history of ancient nations, it is evident, their most prosperous periods were when agriculture was carried to its highest pitch of improvement. We wonder at the vastness of the area of space enclosed within the walls of Ninevah and Babylon; but it should be understood, the ground thus not occupied by buildings was tilled, whereby the annual produce could sustain the inhabitants when besieged by an outward foe; its rulers being well aware that the strength of ramparts and walls was useless if the means of sustenance could not be obtained. The fruitful valley of the Nile was the source of the greatness and the wealth of Egypt; nor is it strange that this people, with no divine relation, should regard this river the chief among their divinities.

During the long civil wars of Rome, agriculture was neglected. For a time, the victories of the arms of the republic brought the fruits of their conquests into Italy, which for a time prevented the evils of neglected husbandry being felt. But when Augustus was peaceably settled upon the imperial throne, and Virgil was known at court, the poet was requested by Macænas to write a work upon agriculture, that his melodious numbers might rouse the spirit and enkindle a taste for rural occupation. The result was the production of the Georgics, in four books, entitled, "The Cultivation of Lands, Raising Vines and Trees, Rearing Cattle, and the Management of Trees." It is said, that soon after the publication of this work, the improvement of the lands in Italy was such as fully to repay the labors of the poet, and met the highest expectation of the government.

Again, when God promised a country to the descendents *of Abraham*, it was not to be a land of ships, commerce, merchandise and *metals*, but a land flowing with milk and honey; and the happiness of the people is portrayed by the phrase, "Every man under his vine and under his fig-tree." When that kingdom was in its zenith under Salomon, the royal table for one day's supply only was thirty measures of fine flour, sixty measures of meal, ten fat oxen, and twenty others taken from the pastures, one hundred sheep, besides harts and roebucks, fallow deer and fatted fowl. This abundance demonstrating the richness of the soil, as the source whence their prosperity flowed.

The panic sometimes felt in European States plainly shows what branch of industry sits as king. Let a battle be lost, a city consumed by fire, pestilence desolate a section of the country,—the money-market becomes stringent. These are but short evils in comparison with the failure of an harvest; for the common but good adage will ever hold good—"Stop the plough and you starve the world."

The stability and security of governments often depend more upon the yield of the soil than upon all the laws and edicts of rulers. The bloody acts of the French Revolution were hastened by the dearness and scarcity of bread. France had at that period her shops and her commerce, and her manufactures *then* as *now*, were unrivaled; but all failed to arrest the storm of crime and murder, as long as the agricultural products fell short of a sufficient supply.

We used to hear a great deal of the corn-laws of England, the object of which was to give the farmer a remunerating price for the crops he raised; and although the policy might be a mistaken one, it arose from the conviction that if the farmer could not live no other branch of the community could prosper; thus awarding to agriculture the legal appellation of king, not as a name of empty pageantry, but one by divine right.

But while thus elevating agriculture, we are every way willing to allow to commerce every means of usefulness to which it is entitled. Tyre, Sidon and Venice are names immortalized by it. Their once-active and widely-extended commerce, and latterly the discoveries and trading pursuits of Spain and Portugal in the 17th century, for a while gave a sort of spasmodic elevation to these countries, but inasmuch as the tillage and improvement of the soil was not the basis of their prosperity, their high station among the nations was brief and transient.

The great and useful idea advocated by your periodical, viz., that where the article is produced it should be manufactured, is an obvious truth; and yet how unwilling communities are practically to act upon it. The South has often been reproached for her slow progress, compared with that of the Northern States; yet would the grower of cotton pursue the same plan a neighboring farmer did near me, that reproach would soon cease. This wise tiller of the soil finding the price of wool low took his fleece to the manufacturer near by and had it made into cloth, and thus realized a much better market than if he had sold the raw material.

In the words commerce, ships, princely merchants, there is a bewitching, false idea that captivates the mind. Napoleon said he must have ships, colonies and commerce, but failed in them all. Had he turned his active and mighty genius to the internal prosperity of France, and permitted agriculture rather than war to be king, he might perhaps even to this day have swayed the scepter of the French nation.

It is these false ideas by which such numbers of our youth are influenced to speculate in trade and commerce rather than follow the less esteemed, more slow, but safer and more useful method of gaining a competency with pursuits of agriculture. There is a false scale of respectability often applied by the merchant, who is doing business upon a large scale, with borrowed capital. His appearance and standing in society, his capacious rooms for business, his large and imposing stock, all elevate him in the eyes of the community. Yet the indivitual who earns his bread by the sweat of his brow, who buys of this merchant a single article and pays for the same, is often in reality the owner of more dollars.

It is not a rare thing for young men to commence business as merchants with no capital of their own, do a great business for a time, and then fail,—offering to their creditors a few cents upon the dollar. Such persons lose nothing because they never had anything; but others, deceived by a false appearance, trusted them, and became the sufferers.

Communities, like individuals, should endeavor to do their work at home. An extensive exportation never enriches a nation unless an equally valuable return is brought home, especially when the same article has to be sent back with all the expense of freight, manufacture, etc. But by bringing the hands to us, the farmer is benefitted by the increase in the number of the consumers of their produce. The manufacturer is also placed in a position to add to this wealth, and both parties mutually depending upon each other, the whole community is bound together. R. S.

FULTON, Wis.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

"COMMERCE IS KING."

WHO makes it king? The Farmer. Who feeds and clothes the world? The Farmer. Who are the subjects of the commercial king? The Farmers. In whose power does it lie to dethrone this king? The Farmer's.

We constitute ourselves one of the "jury of doctors" called for in the

December number, not to give the pathology and diagnosis of the "ruinous evil," but we will prognosticate a cure, and propose a remedy, so that the sufferers may be relieved.

The remedy consists in a revolution, and a new declaration of independence, to be signed by every farmer in the Union.

Let there be formed, without delay, an Agricultural Society in every County in each State, and State societies, composed of delegates from the County Societies. When these are formed, let there be a general assembly, composed of a delegate from each State society. Let the general assembly enact laws to govern each and all, and fix a standard permanent value on each staple production; the value to be reasonable, and at the same time remunerative. For instance, wheat $1.25 per bushel; corn 60 cts.; wool from 30 to 60 cts., as to quality; cotton 10 to 15, etc.

Let the general assembly also cause reports to be made by each State Society, these reports to contain accurate statistics of the amount of each staple raised in every State.

This scheme may at first sight appear visionary, but we think we can meet every objection, except such as may be brought by the courtiers of the commercial king. For example, they will say that it *will prevent their* pocketing all the profits made on farmers' produce; *but we do not care* a straw if it does.

It is high time that the farmers were waking from their Rip Van Winkle sleep; it is high time their eyes were opened and their energies taxed, to overthrow the monster who has fattened to such huge proportions on the profits of their toil.

Is it not absurd and cowardly for the farmers to allow merchants, who depend on them for their food and living, to set the price on their produce, and at the same time fix the value of their own merchandise? Why not trade fairly; at least allow the farmer to price his own commodities? Or, if they will not *allow* them to do it, we say, Farmers, charge a just price, and starve them into subjection. Yes, it is in the farmers' power, if they will unite in one harmonious whole, to control those merchants and manufacturers who are doing all in their power to crush them to the earth. See the effort being made by the manufacturers to annihilate the tariff on wools.

The "wool grower" asks, "What is to be done?" We say, Let a new party of American patriots be formed, to be composed of the honest farmers and mechanics, and let their motto be, *Union* and our own *rights*. Let them crush the factions and isms of the day; let them elect such men to Congress as will bind themselves to protect American industry, whether mechanical or agricultural.

Our country will never be superlatively prosperous until a high tariff is imposed on all foreign articles. We are independent of England and the rest of the world; therefore let us make our own iron and cloths, and protect them, so that the foreign cannot compete with the domestic; and we will guarantee that the farmers will thrive, the mechanics will thrive, and we will permit the merchants and manufacturers to thrive too, although they want to rob us of everything we raise. It is to our interest to let them thrive, for the more we have to feed and clothe, the more profitable our manly calling. What would the farmer do with his surplus wheat and corn, if all were farmers? We want as many mechanics as we can get; the more the better. What if we do have to pay more for manufactured articles? Why, we can afford to, if we have a pocket full of "rocks!"

Farmers! wake up, and keep awake. Do not let this plan fail for the want of energy. Do not read, and then forget, but go to work. Now is the time. Form societies as fast as you can; make your resolutions, and let it no longer be said that you are blind and asleep, and slaves of the rest of mankind.

This is a charitable plan, as well as a plan to secure your own rights; for it will prevent that monopoly which starves the poor. If merchants wish to speculate on our grain, let them do so in foreign lands, but not in this.

We request other agricultural journals to copy this for the benefit of their patrons, and that the ball may be kept in motion.

Respectfully, etc., G. W. VARNUM.
WAYNE, Lafayette Co., Wis., Dec. 22, 1855.

NOTE.—The object of the writer of the above is most praiseworthy, and his plan worth careful attention. The formation of unions, in counties or other convenient districts, who shall advance a given sum on all marketable products not perishable, and who should sell them only at limited prices, would be a very efficient antagonism to the system of private speculation now so efficiently and extensively carried on by middle men, all of whose profits ought to go into the hands of the producer.

Merchants and manufacturers are very much, we suppose, like "other men," securing all the profits they can honestly get, whether the producer is paid or not. They have regard too often for half only of the maxim "live and let live." We cannot doubt that some plan may be devised which shall secure a much larger share of the profits now actually made by traders, for the benefit of the producers.—ED. P. L. & A.

MANURES—THEIR APPRROPRIATE USES, ETC.

MANURE is indispensable to the farmer, to ameliorate the soil and increase its profits. But he should understand the nature of the manure which he uses, and have due regard to the quality of the land to which it is applied.

Manures vary in character, as bone-charcoal, lime, clay, ashes, poudrette, &c.

Manures are divisible into two classes; cooling and fertilizing, and heating and fertilizing. The first includes the excrements of neat cattle and sheep; the second those of the horse, the goat, the hog and domestic birds. Arranging manures according to their heat, beginning with those of the highest temperature and descending, we have the dung of pigeons, hens, turkeys, ducks, geese; then that of the hog, goat, horse, mule, ass, and neat cattle. These ought to be used on light soils, and for pulses and the like, as cabbages, &c. Argillaceous soils require mixed manures, as those with that of the horse, but they should be well made. Sandy soils need the dung of cattle mixed with that of the horse. That of the mule or the ass is not suited for such, nor that of birds. It is not well to mix the dung of hogs with that of other animals, as it tends to propagate nettles; but this should be reserved for marshy lands. It tends to dry them and renders them productive.

1. Manures may be prepared by the farmer in the following manner:—The dung of cattle and the horse may be carried during the winter into a field and laid in a heap; and if near large villages he may also bring horses unfit for use, and dead horses, and if still living they may be killed upon the heap by cutting their throats, their blood being soaked in the heap. After they are skinned, they should be cut in pieces, and being placed on the pile, be covered with it, or with straw, &c. The heap may remain thus till it is

wanted. Thus prepared, not more than a third part will be required, of what would be necessary when used in the common way. This is not an expensive process; any sort of dead animals, cattle &c., might be used in a similar manner. This manure is suited for sandy and gravelly soils, and renders them productive of rye and oats.

2. *Bone-Charcoal.* It is well-known that when the bones of animals are burned in a heap, the result is bone-charcoal, but thus produced it could not be employed to enrich the earth. It is necessary that it should first pass through the hands of the refiner of sugar, who requires it, and it then becomes very valuable to the farmer. But he must be careful not to place it in grounds designed for potatoes the same season, since, according to my experience, by its remarkable absorbent properties, and its resistance of decomposition, it retards the growth of the tubers and tends to produce the disease called the potato cholera. In France, where great use is made of it, and it has an extensive commerce, as in Brittany, I have seen several vessels from Riga every year arriving, loaded only with this bone-charcoal.

3. *Marl* is a kind of soil, composed essentially of lime mingled with clay or sand. It is used for sandy, or low or marshy grounds; but for the first (sandy) it is necessary to choose marl which is composed of *lime or clay.* For there are two kinds of marl, one composed of lime mixed with sand, and the other with clay.

4. *Ashes.* This is used to enrich prairie ground and all moist or wet soils, which it tends to make dry and suited for vegetation.

5. *Human Excrements.* These are more rich in nutricious properties than other kinds, but it is not convenient to use them in their ordinary state. The vegetation produced by them, used in that manner, is apt to retain their odor, and they have a bad taste. Hence in France it is the custom to reduce them to the form of Poudrette. The manipulation of this is laborious and disagreeable. I have assisted, near Paris, beyond the faubourg of St. Denis in this labor, and am able to give an accurate description of it.

At a distance of 500 yards from the road leading from Paris to Brussells, is a spot devoted to this work. Carts which convey the excrements from privies drop them into a pit dug in the earth; water is then poured upon them and they are thoroughly stirred. Those who perform this service are clothed from head to foot in India rubber, without any openings except for respiration, and for seeing and hearing. Thus muffled, they walk into this putrid matter and mix it with their hands and feet. This service is very laborious, and the man who is employed in it is allowed occasionally a glass of brandy. When the mass is properly worked, it is suffered to remain at rest, and the water is drawn off. From this wet mass, small quantities are separated, and are dried in the sun or by the fire, and is afterwards converted into powder, is done up in papers and is called poudrette. A Kilogramme costs four francs; and, according to the nature of the soil, serves for one, two, three, or four acres.

It is necessary to add that it is not proper to mix with these matters any other liquid except urine, since other impurities are injurious in their effects; and contractors for this work, in such case, demand pay for their service, while, if the contents are free from other impurities, they do the work gratis.

Among other means used to enrich the soil, in Poland the following is practised. Upon good land, suitable for wheat and far from their dwellings, to diminish the expense of transporting manures, the ground is ploughed and sowed with buckwheat, and when this is in flower, the plough is passed through it and buries it. In the autumn the ground is cultivated in the usual manner.

SANIEWSKI FELIX.

[Translated from the French manuscript, by the editor of the P. L. & A.]

THE "FIRST PREMIUM" FARM.

THE Committee on Farm Management awarded $50 in plate to Wm. P. Ottley, of Phelps, Ontario Co., for the best managed farm. But two applications were made for this premium, though we think there are many farms which would have stood an equal chance with those which were presented.

The soil of Mr. Ottley's farm is a gravelly loam, and muck with a tincture of clay, the subsoil about the same, lighter colored and porous. Limestone scarce, the rocks found are granite and quartz. The farm contains 100 acres, 85 in cultivation. Mr. O. considers ploughing in clover the best means of enriching his ground. A three years' lay turned under in June for wheat, or the 1st of May with barnyard manure, for the corn crop succeeds well.

He ploughs from seven to ten inches deep, Deep ploughing in his case has a good effect in giving great room for the roots of plants, in its action as an underdrain, in preventing the effects of drouth, in making the land easier to work after it, with other advantages too numerous to mention. Some experiments showing this, and also the difference between shallow and deep ploughing, were made by Mr. O., and we may refer to them hereafter. In regard to subsoil ploughing, he says the effects were entirely satisfactory after the first year, when the crop was lighter than usual, from the poverty of subsoil before due exposure to atmospheric influence.

Manure receives considerable attention on the farm of Mr. Ottley. His straw, corn-stalks, and hay is all fed out in the stables and yards, where his cattle are kept through the foddering season. The straw serves for litter, and having an abundance, also about 65 head of horses, cattle and sheep, he makes about 200 loads of manure annually. This he draws out in a green state to his corn field, (usually planting 12 acres,) putting from 30 to 40 loads per acre, according to its value. It is dropped in similar heaps about one rod apart, and generally as fast as it can be ploughed in. He has a manure cellar, but keeps a part under cover, and finds it a decided benefit. For barley he thinks rotted manure an essential application; it is of such quick growth that it receives little benefit from long manure.

Mr. Ottley has from seventy to seventy-five acres annually under tillage. His fields contain about twelve acres each, and the different crops follow in rotation and culture as follows: For corn he takes a three-year lay of clover, covers it with manure, and breaks up immediately before planting with a double plough, eight inches deep, harrows with a light harrow to avoid breaking the turf, then drills three and a half feet in rows, dropping one kernel at eight inches in a row together with ashes and plaster; and then rolls the whole field.

As soon as the corn is up, he passes through with the one horse cultivator, continues to cultivate until the middle of June,—product usually 50 bushels per acre. Usually plants one acre of potatoes in the same lot. One potato in each hill, split; plant as early as possible,—product light, owing to prevalent disease.

Barley follows corn. He drills in two and a half bushels per acre, in April if possible, ploughing in the spring—product from 25 to 50 bushels per acre. Oats are also sown after corn, three bushels seed, product 75 bushels per acre.

Wheat is sown after barley, two bushels per acre, drilled in the first September. Plows the stubble eight to ten inches deep, with double plough, in two rod lands; harrows fine immediately before sowing, product from 25 to 35 bushels per acre. Seeds down to clover and timothy in September, soon after sowing, and uses for meadow or pasture till its turn in the rotation, usually three years, when it is taken up as above described.

Mr. O. has been particular in growing and saving seeds for growing. He has improved white Soules wheat, starting it from a handful, and saving the first ripened for seed, so as to shorten the time of maturing from six to eight days, he has made like experiments, with like results, in barley, oats and corn. His grains and roots were all trained up in this way, and he thinks it essential that seeds of all kinds should be saved from the first ripening and largest ears. His profits for 1854 are $754, or $8 87½ per acre for the improved land. His total receipts amount to nearly $2000. His principal attention is given to grain growing, which he makes a profitable business, as these figures show.

A regular account is kept, together with a memorandum of farm matter. Mr. O. says he can state the annual expense of improving his farm, and the income of it, and at the end of the year can strike a balance of debt and credit. We join with him in thinking the practice very much conducive to close observation and careful farming; one which in the end would very much improve our system, as well as better our fortunes. It is little more than guess work to farm without some guide—without some means of knowing what crops pay at the end of the year, and what prove a losing speculation.—*Rural New-Yorker.*

COTTON GINS.

Messrs. Editors:—In a recent number of the *Scientific American*, page 49, in the article "Saw Cotton Gin," your correspondent has fallen into some errors, I think. I have been engaged for the last twenty-five years in manufacturing the saw gin, and in all that time have watched closely the operation of my own machines, and others, on the fiber of cotton, with the view of improvement wherever it could be done. I make this statement for those who may differ with me in regard to the operation of the gin. It is hardly possible to overrate the importance of this machine. The saw gin, as it came from the hand of Whitney, admitted of but few improvements, and though many have been attempted, they have mainly aimed at (and accomplished) the making a fairer article of cotton, but always at the expense of the fiber. In proof of this there is in Georgia a gin which was made in Whitney's time, and under his patent,—it has iron saws, and very coarse teeth, but the cotton ginned by it brings from one to two cents per lb. more than from the best improved gins.

Your correspondent, Mr. Du Bois, is right in saying that no two saws catch the same fiber, but I cannot think he has investigated closely when he decides that the saws never break the cotton. Let Mr. Du Bois examine samples under a magnifying glass, from different gins, and he will change his views; let him examine carefully the fiber or the seed, and he will find but a very little difference in the length, and none quite short. But the best proof that the saw cuts cotton, is Fultz's improved feeder, which he says separates the long from the short cotton, thus making two qualities, the long being delivered at the end where it enters, and the short at the other, showing conclusively that the cotton which is first taken from the seed is but little cut, while that which runs the gauntlet of fifty saws, comes out a low quality. I have no hesitation in saying that there is no machine which approaches to a saw that can clean the upland cotton without injury to the fiber, to say nothing of the Sea-Island cotton, which has a much finer and more tender fiber; indeed, the only perfect operation in ginning cotton is the roller principle; therefore, whoever will invent a roller gin that can compete in speed with the saw gin, will increase the value of the upland crop ten per cent., or ten millions of dollars annually, to say nothing of the advantage to the inventor.—H. CLARK, in *Scientific American.*

NEW-PORT, FLA., Dec. 4th, 1855.

FOR THE PLOUGH, THE LOOM AND THE ANVIL.

CORN CROP IN TENNESSEE—EFFECT OF DROUGHT.

A BENIFICENT Providence has awarded to Eastern Tennessee one of the most abundant crops of Indian corn, just now gathered, probably ever known to have been made in the district. Your readers will remember the complaints made in your journal of the drought in 1854 and '5. The *anomalous drought*, so-called, and indeed the continuous dry weather did seem out of rule. It was truly disastrous to grasses. Root crops and vegetation generally seemed to suffer; but the fall of 1854 being one so dry and so favorable for field work, our farmers ploughed up their fallows early in the fall for spring planting, which by the freezes of winter were mellowed into a light mould. The corn was early planted, the weather favorable, and it grew rapidly off, stood well, and the drought had, it seemed, the balancing property to restrain the too rapid growth of the vegetable part, but kept it in equilibrio, so that the cereal should be bountifully supplied with growing matter. Farmers had observed that too much stalk and blade is not best for a good ear, and this drought may have had a good rather than a bad effect in the growing of the corn crop of 1855. One thing I am quite certain of—that the drought has mellowed and pulverized our soils, and consequently enriched them. For example, allow me to state for the eye of my farming friends elsewhere, that I had an old meadow piece of land which I thought had become so poor it would not bring grass, having in 1841 tried in corn, without raising scarcely enough to fill a bushel sack to the acre. In September, 1854, I ploughed it up, and again in April, 1855, and planted in corn the distance four feet each way, with two stalks in the hill, and which was ploughed over only three times and laid by. The yield from six acres of this old, poor, worn-out field was not less than sixty bushels to the acre, besides about thirty-four horse loads of the best of pumpkins, planted intermixed with the corn; and I believe, from the appearance of the soil now, it will bring me as good a crop at any such year hereafter, the whole resuscitation of my old field being attributable to the drought, and the facilities for out-door work it afforded. This old meadow field is imbedded on a stiff clay subsoil, no doubt at all former times full of water. The evaporation from the surface by the rays of the sun created a vacuum of water in the soil, which drew its proper moisture from the probable strata of water in the subsoil. This circulation of water in the earth is the reverse of that which takes place in wet weather. It cannot, however, be the water only which is thus drawn to the soil by the sun, which gives life and vigor to the crop, but also all those enriching substances contained in solution. These qualities are often salts of lime, magnesia of potash, soda, &c., and, indeed, whatever the particular subsoil or under-strata of earth may contain. Professor Higgins, State Agricultural Chemist of Maryland, on this subject says:

"The water in leaving the surface of the soil is evaporated, and leaves behind the mineral salts, which I will here enumerate, viz.; *lime*, as air-slacked lime, or bone-earth, sulphate of lime or plaster of Paris; *carbonate of potash* and soda, with silicate of potash and soda; and also *chloride of sodium*, or common salt—all indispensable to the growth and production of plants which are used for food." Which proves conclusively the beneficial results of drought, and indeed our own observation must teach us that the general abundant crop of 1855 could not of right be attributable to frequent showers. Thus the mystery may be somewhat solved. Farmers are sometimes known to complain of the weather, but a Divine benignity always overlooks and orders all things for their good as a final result. A. L. B.

MILL BEND, Tenn., Jan. 4, 1856.

COMPARATIVE VALUE OF CROPS.

[IN our January number, page 410, we published the statements of Mr. Harvey as to the cost of sundry crops. In the second crop described, there was a discrepancy in the figures, which on discovery he corrected in the following letter, which was not received till after that sheet was printed. This correction was made as follows.—ED. P. L. & A.]

EPPING, Dec. 17, 1855.

DEAR SIR:—Yours of the 16th is duly received. I made a mistake in the first draft in relation to the statement of that wheat, and did not include the interest on land, or taxes. It should read thus:

Whole expense of cash, interest, etc., - - -	$12 50
12 bush. wheat at 13s. 6d. - - - - - -	27 00
Profit to land - - - - - -	$14 50

Potatoes, No. 2. Three years ago I received a few from Andover, Mass., with the assurance that they would not rot. I had but little faith in the statement, but for these three years they have been entirely sound when *others have rotted. They are a late potato,* and remain hard for a *year.* They are not of the first quality for the table, as yet. We put them on this piece of land on purpose to try them, to see if they would rot with high manuring and a moist, dark-colored soil. Yours, etc.,

M. P. Parish, Esq. D. L. Harvey.

THE SWEET AND THE IRISH POTATO.

Sweet Potato—Batatus Edulis.—The esteem in which the sweet potato is held may be estimated by the extent to which it is produced, 4,742,000 bushels, worth more than two millions and a quarter of dollars, being the crop of Mississippi of 1840.

In the production of this esculent, Mississippi ranks fourth among the States of the Union; Georgia, North Carolina, and Alabama only excelling her.

Five varieties are cultivated with us, which will be mentioned in the order of their excellence, as generally estimated. First in quality, as in extent of cultivation, stands the Yam, which, if surpassed by some in average size, is approached by but one in delicacy of flavor. Its shape is oval or roundish, with a smooth exterior and yellowish tint. It is as prolific as any other, and keeps remarkably well.

The next in place is the Spanish, or white potato; it is long and crooked, with large veins or nerves running lengthwise on the exterior, by which it is universally characterized. Another characteristic which distinguishes it from all others, is an aptitude of the flesh, or meat, if I may so designate it, when cooked, to divide or separate in layers or flakes lengthwise, the fiber at the same time being destitute of any stringy property.

Early in the season it is rather too milky to suit the taste of many, but when thoroughly cured, it becomes very sweet and rich, differing somewhat in flavor from the yam. It grows to a large size, and singularly enough, notwithstanding its excellence, it seems to be greatly neglected of late, and is not now often met with.

The Bermuda potato has a deep crimson or purple skin; but the interior is very white. In form it is more cylindrical than the yam, somewhat elongated, and is regarded by some as the largest and most prolific variety. Its flavor, however, is coarse and flat.

The Red is the earliest variety introduced here. It was formerly very generally cultivated; it is inferior to the foregoing in size, and not now very much in use.

It is rather dry and mealy, and is best early in the season, when newly dug, and it is perhaps the earliest to mature.

The Poplar Root, which somewhat resembles the yam in outward appearance, but not generally so round, with a smooth skin, and the color rather a deeper yellow, was introduced ten or fifteen years since with high commendations. It proved a watery, insipid kind, however, and is now generally banished.

Up to the period of 1810 or 1815, the yam potato was rarely seen; the old red and white Spanish being altogether cultivated—the former much the more extensively.

The Bermuda is the most recent introduction.

All the varieties of the sweet potato succeed best in a loose sandy soil, although the yam is said to flourish in the prairies of the eastern counties. I have seen one of that variety raised near Macon, which weighed ten pounds.

The proper time for planting is about the 1st of April, and the most approved mode of raising the yam is to *spread* the small roots or potato plantings on a rich bed about the first of March, covering them with three or four inches of loose rich soil. When the sprouts make their appearance above the surface, they are drawn and set out in newly-made ridges after or during a rain.

These beds continue to throw out a succession of sprouts, which may be planted every favorable season as late as the first of August, and if well worked, and the weather be not too dry, will make good potatoes. It is said the red potato does not succeed so well when planted in this way.

At some seasons the sweet potato is sufficiently matured for early use by the first of September; but it is attended with great waste to commence on them so soon, as it is thought the tubers grow more in October after the vine begins to decline than before.

The best time for digging potatoes is the first good *dry mild weather* succeeding the first frost that kills the vines. They are then *better ripened*, freer from water or sap, and consequently keep better. They should not be suffered to remain undug until the ground freezes, as they will become frost-bitten and rot.

The most approved mode of preserving the sweet potato is to place them in piles or heaps of about twenty-five bushels each, on raised ground, with a flooring of corn stalks and straw, the sides being lined with the same material, the whole covered with three or four inches of earth or sod, a small aperture being left near the apex of the cone for the escape of the moisture which passes off from the potato when undergoing the sweat, which always takes place soon after they are placed in bulk.

Put up properly in this way they will keep perfectly sound and sweet until June or even later.

The potato *patch* affords a good gleaning to the fattening hogs, which are usually turned upon it, and find in the small tubers, cut and waste potatoes, a favorite food on which they thrive rapidly, and is a good preparation for after feeding on corn in the close pen.

Some planters put in a large crop of sweet potatoes for this purpose, and when corn is scarce give no other food. The meat is said, however, to be less firm, and the lard more oily than that of the corn-fattened hog.

THE IRISH POTATO.—SOLANUM TUBEROSUM.—The Irish potato is not extensively cultivated, and seldom beyond the limits of the garden.

Two varieties—the Meshanic and the Purple Eye—are those which seem to be the most approved, the red being rarely planted, under the common belief that the white varieties succeed the best. For what we do plant we are dependent every year almost entirely on those brought down the Missisippi from the Western States.

A course embracing the planting, cultivation, and after treatment, which has been tested many years, may be confidently recommended as one attended with much success.

In suitable weather soon after the first of January, on the even, clean, but unbroken *surface* of the ground appropriated for the purpose, place the cuttings with the eye upwards, three inches apart, in rows two feet distant from each other. Cover *well* with light rich vegetable compost. Well-rotted com-blades, straw, or leaves from the woods, are well suited for this purpose. Draw over this a moderate ridge of earth. As soon as the tops show themselves generally above the surface an inch or two high, ridge up with earth, again covering the top entirely, and repeat this in ten days or so, when the tops appear the second time. This will give a ridge of sufficient size, and *completes* the cultivation.

About the middle of April the potatoes are fit for use, and are to be dug daily as required.

About the first of June, especially if the season be dry, the tops begin to fail and gradually die; the grass and weeds which spring up between the rows must not afterwards by any means be removed; otherwise, when deprived of the shade afforded by the top, the potato will become partially scorched or baked in the ground by the intense summer heat, which makes them watery and causes them to rot. Protected by the grass and weeds, they remain fresh and sound, and will keep in excellent condition until frost.

It is generally conceded that the Irish potato cannot in our climate be kept through the summer out of the ground. For this reason, and possessing no value for stock, together with the preference which most Southerners give to the sweet potato, it is not more cultivated.

The crop of 1849 was about 260,000 bushels.

There is a considerable consumption of the Irish potato in our cities and towns convenient to the river, which are obtained from the Western States at a price much below what they can be produced for here.—*Wailes' Agricultural Report of Mississippi.*

REMARKS ON FOUNDER, AND THE FOOT OF HORSES AND SHOEING.

PREFACED BY SOME OBSERVATIONS ON THE REPRINT OF STEWART'S TREATISE ON STABLE ECONOMY.

BY CAPTAIN RALSTON, GRAD. ROYL. VET. COLLEGE, AND MEMB. ROYL. COL. VET. SURGEONS, ETC.

It is gratifying to note the reïssue of this treatise of Professor Stewart, for it is a very useful veterinary text-book, either for horse owners or amateurs, grooms or stable helpers. It little boots to be hypercritical on hypercriticism, and the writer is not disposed either to much carp or cavil at the matter or manner of its American editor's adaptations, or those additions he has made to this adoption from British veterinary literature. The additions, however, are but meagre, and add little that is new; and, as to improved adaptations, the book must speak for itself. One or two of the comments, or notes, are calculated to perplex, as for instance where "Founder" is spoken of. The note appended, here, denies the author's professional view, establishes nothing in its room, and is expressed in somewhat oracular phrase. On the subject of "Founder" the writer proposes to submit a few remarks, the result of no inconsiderable experience; but, first, he wishes to premise a few general reflections, farther, upon this reprint of "Stable Economy."

With all respect for the intelligent zeal of the gentleman who has edited this American reprint, the writer ventures to think that the book was one which could very well have stood alone, on its original merits; and this so much the more, inasmuch as additions to and emendations of a professional treatise would ordinarily require to come from professional hands. It is true the subject is "Stable Economy"; but the teaching of this had been based on and derived from trained and experienced attainments in veterinary science. Again, the animadversions of the preface, upon Professor Stewart's lack of chemical knowledge, could have been spared. This question in no way was involved; and, moreover, any inferences of chemistry, throughout the volume, have been made in a popular or practical vein. The editor is perhaps a profound chemist, and, still, it may be no less true that chemical research sometimes refines in its conclusions too far. As this gentleman has predicated, "sugar" is abundant of "carbon," and deficient of "nitrogen," and nitrogenous aliment seems to be denoted for forming muscle. But this elementary question was hardly germane to the experiment with sugar referred to by Prof. Stewart; and more, it would be difficult to gainsay the fact that the negroes on Southern plantations are found to thrive most, and to prove most vigorous, during the period of their hardest labor, at the harvesting and boiling of the sugar crop. In raising and feeding stock, likewise, the value of sugar, as an article of food, has become well and economically known to agriculturists. Still, it is not intended, nor can this rebut the more accurate chemistry of the editor; only, sometimes, one is inclined to exclaim of animadversions, "Here is too little bread to all this sack!" However, the wish to be acknowledged to *know* besets us all; and let us only tell what we really know, and no more than we do know, and we shall instruct and benefit each other. Violations of this rule have been the fertile parents of no end of errors, equally in science and fact.

Those opportunities of practical information relating to horses and stable economy, by which the editor appears to have so well availed, merit every respectful consideration; yet it is all a long way off from attaining to be the veterinarian. Neither natural talent, however aided by general education, nor the best and shrewdest observation of fact and incident, or of daily intercourse with horses, can confer veterinary knowledge, though assuredly yielding valuable adjunctives. If the theory of any science must be of uncertain value, until tested by application or practice, equally and more so are practices halt and blind—unreliable—until cognate of and grafted on due and proper theory. Only combined principles and practices, each in harmony with the other, can fix laws and establish confidence, in a manner to found a claim to be installed in the temple of science. Any one may take up and foster crude opinions, or follow up certain practices, and plausibly term these medical or surgical; but whether this be in relation to man or horses, it is far more than likely that both opinions and practices may come under a similar category, and the one be erroneous, while the other is hurtful. To become a veterinarian, and entitled to decide on veterinary facts and exigencies, demands a studious and systematised acquaintance with those laws and influences that regulate animal life and structure, and well discriminated investigation of healthy and morbid conditions. A French axiom may not be inapt, and is certainly expressive: "Qui dit Docteur, ne dit pas un homme Docte, mais un homme qui devroit etre Docte," or, "to say doctor, is not always to say a learned man, but who ought always to be a learned man." On an occasion where a young veterinarian was giving evidence in a law case, arising out of lameness of a horse, the opposite evidence was that of an old farrier, erudite in veterinary medicine because he had long shod horses. The judge having summed up on the side of the veterinarian, the jury found accordingly, and greatly to the amazement of old Vulcan. He vowed the verdict was unfair, was a mistake;—what could that young fellow, bred in a college, know? But he—himself—he knew all about horses; had been about them all his life; was born a horse doctor, for his father had been a horse doctor, and his grandfather a horse doctor before him! Neither judge nor jury, however, had any faith in this heritage of veterinary wisdom.

The editor, in his preface, expresses a strong impression of the difference of management required for horses, in consequence of the difference of climate and food of the two countries. The writer from what he has seen of both countries, is unable to recognize any marked difference. The more perfected care and stable discipline, and the improved shoeing of horses in Britain, would be attended with high advantages if introduced here. As to food, except that the British animal never partakes of Indian corn or fodder, there are small differences otherwise. The greater dryness of the climate is much in favor of the horses of this country. In fact, America is qualified to produce the finest horses of the world; for while her varieties of soil fit her for either raising the heavy draft horse or the fleet courser, from the dryness of atmosphere she is peculiarly adapted for raising the latter. In this respect she possesses those advantages which have mainly conferred on the desert Arab his fine form, compacted tissues, speed, and unrivaled hardihood. What this country now exigently wants is a sufficient supply of the right kind of blood sire horses. The mongrels now supplying in every district the place of pure lineaged, or thorough-bred stud horses,are fast deteriorating those other mixed or general breeds, so invaluable to every nation; and this will soon utterly root out the fine foundations laid by the early introduction of English turf horses. That due attention to obtaining the blood horse, of fine form and undoubted purity of race, is so utterly neglected, is a deplorable reflection. Recurring to importations firstly, and gradually, thereafter, raising a supply of this class of horse, for his especial stud purposes, can alone provide a sure remedy; and farmers' clubs and agricultural associations would act wisely by uniting to import a well selected stud horse, or horses, for their own respective districts. It would be an investment which would pay twenty-fold over the employment of an equal fund in any other direction, and would prove an individual, state, and national boon. The writer would have much satisfaction in aiding any such movement, by his experience, or advising, or coöperating.

In regard to the effects of dryness of climate, there is an attendant drawback to shod or stabled horses, which inattention renders serious. In a horse's so artificial state, the horny covering of the foot—the hoof—is apt to become altogether too dry, hard, and inelastic. This evil is augmented by extreme dryness of atmosphere; and the confinement of that needful, but baneful defense, the shoe, greatly aggravates the mischief. Here it is that plank floors, as being bad conductors of heat, are objectionable. But for this, plank flooring (at least for the stalls,) when judiciously arranged for carrying off the urine, etc., is excellent. And if the hoofs are skillfully prepared for the shoe, and the latter is good in form and properly adjusted, and if, at the same time, proper stable care is resorted to, for the purpose of keeping the horn of the fore-feet cool and supple,—then, neither plank floors, stabled life, nor shoeing, need impair the feet, or produce chronic foot lameness. There are, however, more horses suffering from foot lameness in New-York, than in any other part of the globe among three-fold the same aggregate number of horses. It is chronic foot lameness, and the miserable form and fitting of the shoes, that occasion the terrible falls and injuries to horses, daily seen on Broadway. The Russ pavement is very smooth, but still, sound horses, in proper shoes, will never fall on it in the manner now daily done by hundreds. These allusions to the hoofs and shoes lead to a reference to the editor's objection to hoof-ointments. The judicious use of an eligible kind of an ointment for the hoofs, the writer contends, is serviceable. The best is perhaps equal parts of tar and tallow, melted together, and kept for use in a jar. A thin brushing of this over the soles, bars, frogs, and walls, once a week, and for strong feet twice a week, is recommended. On the other days, the fore-feet should be stopped with pads of tow, kept moist, and a spongeful of water should be frequently squeezed over the hoofs. When a horse is to be taken to be re-shod, the tar dressing should be invariably applied over night, and the shoeing smith can then use his drawing-knife in a proper manner, and prepare the hoofs for the shoes as this ought to be done; that is if this operative, who has so much to do with the best value and utility of every horse at work, be in possession of the right knowledge and skill, but which is indeed a rare event.

I now speak of Founder. It is necessary first to ascertain what may be meant by a term, which is a truly absurd one, *derived from the horse*-doctoring school. Some speak of chest founder, *and some of two kinds of* foot founder. The former idea is the product of ignorance, which assumes an effect for a cause. The shrunken state of the pectoral muscles, the wired-in shoulders, and contracted cavity of the front of the thorax or chest, which are supposed to constitute the disease, are all, and in every case, effects from long protracted pain in the fore-feet—chronic foot lameness. A horse suffering from this so universal curse of stabling and shoeing, to wit, contraction, coffin-joint lameness, navicular-joint disease, etc., ceases to go free in his action, and bend his knees; does not exert his muscular forces, or give them their full and rounded play; and goes near, or toeing the ground, and short in gait in every way. He may not drop at all in his step, unless the feeling is only in one foot, which is not usually the case; and, hence, does not seem lame to the unpractised eye. The consequence of this is, in not a few cases, that the unexerted muscles, outside and inside the shoulders, fall away; the circulation through the lungs being decreased, the expansion of these organs becomes proportionally diminished, and the chest, at the brisket, falls in; and, in time, the fore-quarters altogether acquire that wasted look to which the sapient term "chest founder" has been applied. In this country it is also called "sweeny," an Irish piece of euphony.

By some, again, the contracted hoof, and attendant chronic foot lameness, have been termed founder. But what is more ordinarily so termed is the permanent result of a very acute disease, viz., "fever in the feet," or more properly "laminitis." It was to the altered condition of the feet, which frequently follows an attack of laminitis, that the term founder appears to have been originally used; and when the veterinarian adopts the phrase, it is in this peculiar sense. In the cases indicated, the animal treads with the toe of the hoof turned up; the horn of the sole is flat or pumiced, and resembling in appearance the outside of an oyster shell; and in front of the hoof seems as if caved in. It was to laminitis and its sequelae, founder, that Professor Stewart was adverting, where the editor so curtly differs in opinion. Reference was made to only one phase of laminitis, and its consequences, founder, viz., where the occasion of the fever might have been indigestion of food, and a gorged stomach. This is not a frequent cause; but if inflammatory action is going on in the coats of the stomach, and there is likewise local congestion from the organ being gorged with food, a revulsion of inflammation to the highly vascular laminated structure of the hoofs is, medically speaking, a probable enough result.

Any one acquainted with the anatomy of the foot and the specific disease which occasions its lapse to the peculiar condition designated founder, would readily comprehend the professor's limited remark, as applicable to his then subject; but which was otherwise hurried and loose. It may not be amiss to seize the present opportunity, and present a brief description of the laminated structure of the foot, together with this acute fever to which the same is liable, and its so frequent consequence, founder.

The external surface of the horse's foot, or, as more usually termed, the coffin-bone, is covered with a half muscular half membranous structure, denominated the sensitive or elastic laminae. This presents a series of leaf-like edges, something like the plaits on the surface of some paper lamp-shades, but far more minute and numerous. This structure is very vascular, and it circulates an extraordinary amount of arterial blood. On the inner surface of the horny covering of the foot—the hoof—there is a reverse series of plaits, of a half horny half ligamentous texture, resembling the inner side of a mushroom. These plaits, on the outer or convex surface of the coffin-bone, are interlaced or locked with those lining the inner or concave surface of the hoof; and on this union, or combination, every horse's weight and action is wholly suspended and hinged. There are about five hundred of these elastic plaits or laminae to each foot, and they may be likened to minute coach-springs. From the numerous blood vessels and nervous sensibility of this structure, and the extraordinary tension it is subjected to in long continued exertion, it is very apt to undergo inflammatory attacks. The smallness of hoof of so large an animal renders any greater influx of blood or inflammatory tendency very dangerous in so confined a cavity, and this is much increased by hard and unyielding states of the horn, and the binding of its iron defense, or shoe. Laminitis, or fever of the feet, is a violent inflammatory attack of the laminae; usually of the fore-feet, but sometimes all round. This usually runs an acute course of from twenty to forty hours, terminating either by resolution (cure), suppuration, or death. Suppuration is a very common result. When this ensues, the union between the sensitive laminae and those of the inner surface of the hoof is dissolved, or relaxes, and the coffin-bone being no longer fully suspended, sinks down on the horny sole. If the violence of the fever now abates, and the animal should survive, lymph is effused between the laminated plaits, and they are retained together; but no longer elastic. The coffin-bone remains resting on the horny sole, and the hoof presents all the appearances described above. This is what has been termed Founder.

The causes of laminitis are most usually long-continued exertion, followed by muscular exhaustion, and attended by excessive excitement of the heart and arterial system. As already observed, in reference to affections of the stomach, it is not unfrequently the result of revulsion or translation of inflammatory action from other organs; or what, in medical language, is technically called "metastasis." The writer has seen it supervene from inflammations of the bowels or lungs, and on occasions from influenzal fever, when this has run high, and threatened to center in the lungs. It is a disease which requires instant and the most active treatment.

JOHN C. RALSTON.

INSECTS INJURIOUS TO VEGETATION.

LEPIDOPTERA.

We now come to this, the fourth natural order of insects. It comprises caterpillars, butterflies, moths, etc., and forms a very numerous and destructive agency. No insects do so much injury as catterpillars. They multiply with great rapidity, and are exceedingly voracious. Each female lays from two hundred to five hundred eggs. There are several hundred varieties, and all subsist on vegetable food.

Caterpillars differ greatly in form, but certain characteristics are common to most of them. The name Lepidoptera means scaly wings, and under a magnifier the floury appearance of these membranes appear to be scales like those of fishes. They are more or less cylindrical, with twelve rings, and from ten to sixteen legs. They have a shelly head. The first three pairs of legs are shelly, jointed, and armed with a claw. The other legs are without joints, but furnished at their extremities with minute hooks. They have six small eyes on each side of the head, two short antennæ, and strong jaws or nippers. The insect spins its web through a little conical tube in the middle of the lower lip. The substance of the web is contained in fluid form in two bags within their bodies.

Some caterpillars are solitary in their habits, and others herd together in great numbers. Some live sheltered on the stems of plants, others on the leaves, concealed by webs or by rolling up the leaf; others live in the ground, issuing from it only for food.

Caterpillars change their skins three or four times while they are growing. Previous to their first transformation they cease eating, and spin a cocoon about themselves, or envelop themselves with bits of leaves, grains of earth or of wood. Some suspend themselves by their web, remaining uncovered. Others go through their transformations under ground.

Escaping from this covering they become a pupa or chrysalis, and are apparently without heads or limbs. But traces of a head, antennæ, wings, legs, etc., may be discovered pressed closely to the body. In this state they take no food, and remain perfectly at rest. After a while the chrysalis begins to contract, and is rent, and a head, antennæ and body of a butterfly or moth issue; and ere long the insect acquires strength and power of flight, etc. Their butterfly life is very short. Flitting from flower to flower, they pair, lay their eggs, and become a prey to other insects or die a natural death.

Lepidoptera are arranged in three classes, called butterflies, hawk-moths, and moths. These terms correspond to the genera *Papilio*, *Spinx* and *Phalæna* of Linnæus. The following characteristics distinguish these genera.

The butterfly has thread-like antennæ, knotted at the end; the fore-wings of a part, and all the wings of others are elevated perpendicularly and turned back to back, when at rest. Their legs are sixteen in number, and on the hind-legs are two little spurs. They fly only by day. The wings of the true butterfly are upright when at rest; the *skippers* carry their fore-wings upright, the hind-wings being nearly horizontal when at rest. *Skippers* fly but a short distance at a time, with a jerking motion. They frequent grassy places, low bushes and thickets.

Hawk-moths (Sphinges) have their antennæ thickened in the middle, tapering at each end, and often hooked. The wings are narrow in proportion to their length, having a bunch of hairs on the shoulder of each hind-wing. All the wings are inclined like a roof, when at rest, the upper ones covering the lower. On the hind-legs are two pair of spurs. Some fly by day, most of them in the morning and evening twilight.

The hawk-moth is so called from their habit of hovering in the air while taking their food. They are sometimes called *sphinges*, or sphinxes, from a fancied resemblance to the Egyptian sphinx. They support themselves by their four or six hind-legs, elevate the forepart of the body, and remain in that position for hours. When they reach the winged state, they are sometimes called humming-bird moths, from the noise which they make in flying.

In the moth (phalænæ) the antennæ are neither knobbed at the end nor thickened in the middle, but taper from the base to the extremity, sometimes naked and sometimes feathered on each side. The wings are confined together by bristles and hooks, the first pair covering the hind-wings, and sloping when at rest. Two pairs of spurs are attached to the hind legs. They fly mostly by night. They are sometimes called millers, and include those pests of the house called moths. They vary very much in size, form, color, and structure. The owl-moth expands eleven inches; others are very minute, especially those with gilded wings.

It is impossible even to enumerate the entire list of species of these insects which are found in this country. We must therefore attempt only a concise description of certain insects of peculiar interest, and some of those which infest particular plants; and even this can be done only in a very imperfect manner.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL

OF THE MATERIALS USED IN THE ARTS.

I. FROM THE VEGETABLE KINGDOM.

THERE are various kinds of wood used in the arts, consisting of the woody portion of the trunks of trees, which are formed by layers of a hard substance, strengthened by tubular cells between, for the purpose of conveying the *sap*, which is the life of the tree, through its branches. The outer layers are more open, and consequently they are more perishable than the inner layers, which are harder, and are called the heart-wood.

The bark of the tree is used for tanning leather, for coloring, etc.

OAK is the most valuable for timber, and consists in something like twenty species in the United States and Canada. The live oak of the South (*Quercus Virens*) is prized in ship-building beyond any other timber, for durability and strength. The white oak, (*Quercus alba*,) is used for ship-building also, and for mill work, house frames and machinery where strength is required; for wagons, parts of carriages, ploughs, and various other implements of agriculture. The yellow oak, (*Quercus tinctoria*,) is considered next to the white for durability and strength. The bark of this furnishes the *quercitron* used for coloring. The other kinds of oak—red oak, black oak, gray oak, swamp oak, post oak, and chestnut oak, and various other species, are considered valuable for the arts.

HICKORY.—There are several kinds. The pignut, (*Juglans porcina*) is considered the best for axe and hammer handles, and all other handles requiring strength, for cogs or teeth for wheels, for wagon and cart-axles, as the grain is close and smooth. The red heart, (*Juglans laciniata*,) the shell bark, (*Juglans squamosa*,) are more open grained; consequently are not so good in the arts, as it decays in the weather very soon.

Ash.—White ash, (*Fraxinus Americana*,) and some other species, are very useful in the arts, the wood being strong and elastic, tough and light, durable and permanent in its dimensions; is commonly used for carriages, wagons, and various kinds of machinery, and of great use for oars, handspikes, blocks, etc., for vessels.

Elm, (*Ulmus Americana*,) is of great value for cart and wagon hubs (naves,) as it is tough and not apt to crack or split.

Wild Cherry, (*Prunus Virginia*,) is of a deep color; is very useful in cabinet work. Being stained with a strong alkali renders it almost as dark as mahogany.

Chestnut, (*Castanea vesca B*,) is a large tree of rapid growth, coarse grained and porous, very liable to warp, easy to split. It is used for light timber, for house-frames, such as stud, rafters, and sometimes for sills of buildings. It is very durable in the weather, is valuable for fences and for posts. It should be set top downwards for posts, as it then lasts much longer. It is also charred for charcoal.

Beech, (*Fagus ferruginea*,) is one of our best kinds of wood. It is very hard and smooth, is used for planes and moulding tools, chisel handles, and various uses where hardness and smoothness is required. It is not very durable in the weather.

Basswood, (*Tilia Americana*,) is a very fine grained wood, soft and light, and flexible. It is used by cabinet makers and carriage makers for pannels, etc., for which its flexibility makes it well suited.

Tulip Tree, (*Liriodendron tulipifera*.) This wood generally goes by the name of *white wood*, and sometimes by the name of *poplar*. It is fine grained and smooth, but not durable in the weather. It is very apt to warp, It is mostly used for furniture and wagon bodies, and frequently for joiner work inside of a house. It paints very handsomely.

Maple.—Rock maple, (*Acer Saccharinum*,) also several other species, are hard, smooth, and compact. It is used for gun-stocks, bedsteads, and various kinds of machinery. The curled maple and birdseye make beautiful furniture by staining it with diluted sulphuric acid and a coating of varnish. It makes excellent fuel when dry. The sap of rock maple boiled down makes sugar.

Birch.—The white birch, (*Betula papyracea*,) is similar to maple, only harder. The Indians make their canoes out of the bark of this tree. The lesser white birch, (*B. populifolia*,) is a tree of but little value, except to make charcoal. The bark of the black birch, (*B. lenta*,) is very aromatic; the wood is very firm and compact, of a dark color, of much value for furniture, for screws, and sometimes for joiners' planes. It is very strong. The yellow birch, (*B. lutea*) is very similar to the black except in color.

Black Walnut, (*Juglans nigra*,) is valuable for many uses. Its heart is very dark, resembling the color of the violet, and is frequently used for furniture and for finishing the inside of churches. It is very durable when exposed to the weather. It is very tenacious, and when perfectly seasoned is not liable to crack and warp.

Hornbeam.—There are several species of trees in the United States, under the names of *peperage*, *sweet gum*, and *horn-beam*. Their wood is very smooth grained, and very remarkable for the interweaving of the fibers, which renders it almost impossible to split the logs. It is sometimes used for the naves of wheels, hatters' blocks, and implements requiring lateral tenacity.

ESTABAN.

SAXE-GOTHÆA CONSPICUA.

THIS remarkable plant, to which his Royal Highness Prince Albert has been pleased to permit one of his titles to be given, and which will probably rank among the most highly valued of our hardy evergreen trees, is a native of the mountains of Patagonia, where it was found by Mr. William Lobb, forming a beautiful tree 30 feet high. In the nursery of Messrs. Veitch, of Exeter, it has lived in the open air four years without shelter, and has all the appearance of being well adapted to the climate of England. The country in which it grows is, indeed, more stormy and cold than any part of Great Britain, as is shown by the following account of it, given by Mr. Lobb in one of his letters to Messrs. Veitch:

"During my absence I visited a great part of Chiloe, most of the islands in the Archipelago, and the coast of Patagonia for about 140 miles. I went up the Corcobado, Caylin, Alman, Comau, Reloncavi, and other places on the coast, frequently making excursions from the level of the sea to the line of perpetual snow. These bays generally run to the base of the central ridge of the Andes, and the rivers take their rise much further back in the interior. The whole country, from the Andes to the sea, is formed of a succession of ridges of mountains gradually rising from the sea to the central ridge. The whole is thickly wooded from the base to the snow line. Ascending the Andes of Comau, I observed from the water to a considerable elevation the forest is composed of a variety of trees, and a sort of cane so thickly matted together that it formed almost an impenetrable jungle. Further up, among the melting snows, vegetation becomes so much stunted in growth, that the trees, seen below 100 feet high and 8 feet in diameter, only attain the height of 6 inches.

"On reaching the summit no vegetation exists—nothing but scattered barren rocks which appear to rise among the snow, which is 30 feet in depth, and frozen so hard that on walking over it the foot makes but a slight impression.

"To the east, as far as the eye can command, it appears perfectly level. To the south, one sees the central ridge of the Andes stretching along for an immense distance, and covered with perpetual snow. To the west, the whole of the islands, from the Guaytecas to the extent of the Archipelago, is evenly and distinctly to be seen.

"A little below this elevation the scenery is also singular and grand. Rocky precipices stand like perpendicular walls from 200 to 300 feet in height, over which roll the waters from the melting snows, which appear to the eye like lines of silver. Sometimes these waters rush down with such force that rocks of many tons in weight are precipitated from their lofty stations to the depth of 2000 feet. In the forest below everything appears calm and tranquil; scarcely the sound of an animal is heard; sometimes a few butter-

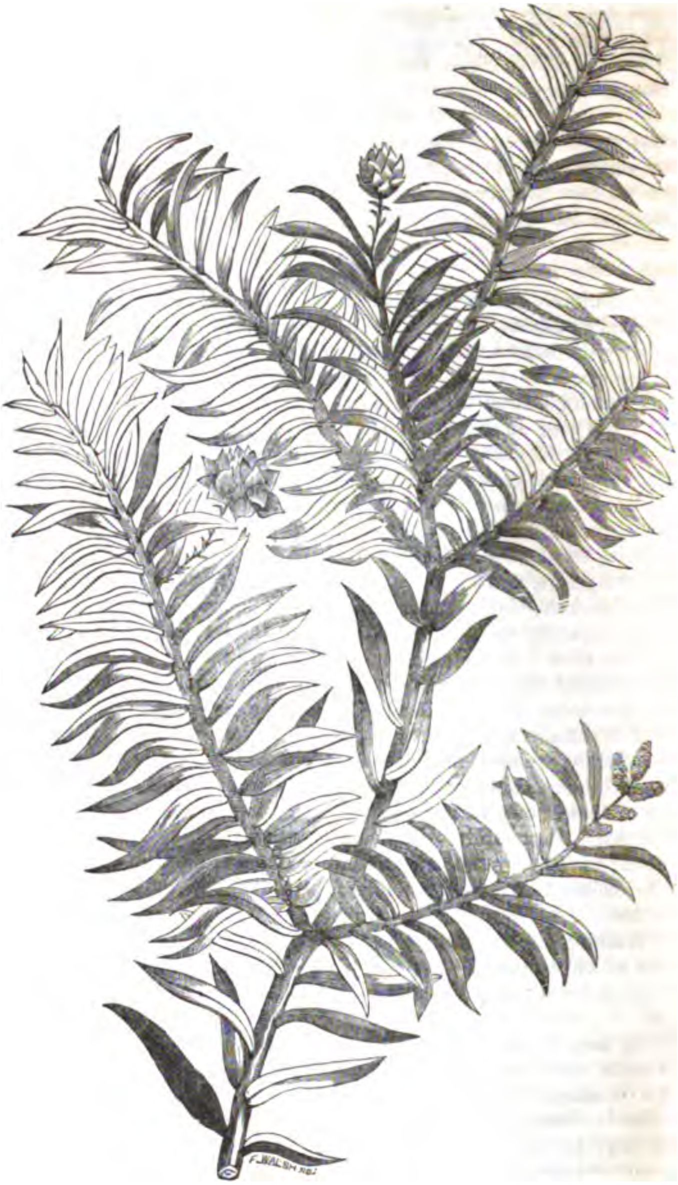

Fig. A. BRANCH OF SAXE-GOTHÆA CONSPICUA.

flies and beetles meet the eye, but not a house or a human being is seen. On the sandy tracts near the river, the lion or puma is frequently to be met with; but this animal is perfectly harmless if not attacked."

It is from this wild and uninhabited country that many of the fine plants raised by Messrs. Veitch were obtained, and among them the *Saxe-Gothæa*, *Podocarpus nubigena*, *Fitz-Roya Patagonica*, and *Libocedrus tetragona*. Of these he writes thus:

"The two last (*Fitz-Roya* and *Libocedrus*) I never saw below the snow line. The former inhabits the rocky precipices, and the latter the swampy places between the mountains. The first grows to an enormous size, particularly about the winter snow line, where I have seen trees upwards of 100 feet high, and more than eight feet in diameter. It may be traced from this elevation to the perpetual snows, where it is not more than 4 inches in height. With these grow the Yews (*Saxe-Gothœa* and *Podocarpus nubigena*,) which are beautiful evergreen trees, and, as well as the others, afford excellent timber."

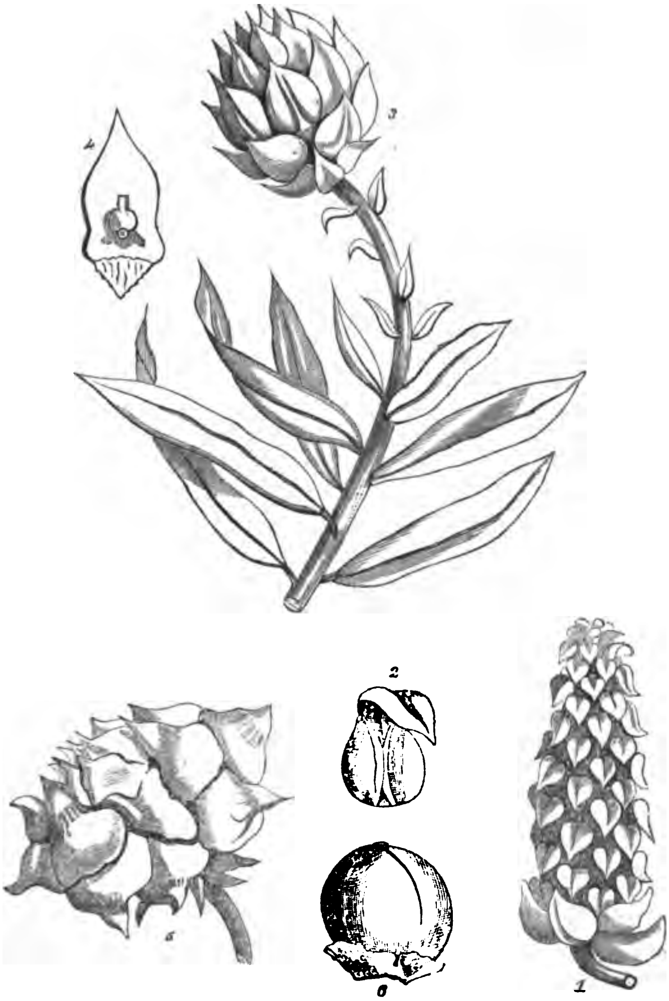

Fig. B. FRUCTIFICATION OF SAXE-GOTHÆA.

Saxe-Gothæa may be described as a genus with the male flowers of a Podocarp, the females of a Dammar, the fruit of a Juniper, the seed of a

Dacrydium, and the habit of a Yew. Its fleshy fruit, composed of consolidated scales, enclosing nut-like seed, and forming what is technically called a Galbulus, places it near Juniperus, from which it more especially differs in not being peltate, nor its fruit composed of a single whorl of perfect scales, and its ovule having two integuments intead of one. In the last respect it approaches Podocarpus, and especially Dacrydium; but the exterior integument of the seed is a ragged abortive membrane, enveloping the base only of the seed, instead of a well-defined cup. In a memorandum in my possession, by Sir William Hooker, I find the distinguished botanist comparing Saxe-Gothæa to a Podocarp with the flowers in a cone—a view which he was probably led to take by the condition of the ovule, and which may be regarded as the most philosophical mode of understanding the nature of this singular genus; to which Nageia may be said to be a slight approach, and which is not distinguishable by habit from a Podocarp.

In its systematic relations Saxe-Gothæa possesses great interest, forming as it does a direct transition from the one-flowered Taxads to the true imbricated Conifers, without, however, breaking down the boundary between those orders, as I understand them, but rather confirming the propriety of limiting the Coniferous orders to those genera which really *bear cones instead of single naked seeds*. In the language of some *naturalists*, Saxe-Gothæa would be called an osculant genus between Taxads and Conifers.

The leaves of this plant have altogether the size and general appearance of the English Yew (*Taxas baccata*); but they are glaucous underneath, except the midrib and two narrow stripes within the edges, which are a pale-green. The male flowers consist of spikes appearing at the ends of the branches, in a raceme more or less elongated. These spikes (fig. B, 1) grow from within a few concave acute scales, which form a kind of involucre at the base. Each male is a solitary membraneous anther, with a lanceolate, acuminate, reflexed appendage, and a pair of parallel cells opening longitudinally. The female flowers form a small, roundish, pedunculated, terminal, scaly imbricated cone (fig. B, 3.) The scales are fleshy, firm, lanceolate, and contracted at their base, where they unite into a solid center. All appear to be fertile, and to bear in a niche in the middle, where the contraction is a single inverted ovule (fig. B, 4.) The ovule is globular, with two integuments beyond the nucleus; the outer integument is loose and thin, and wraps round the ovule in such a way that its two edges cannot meet on the underside of the ovule;* the second integument is firm and fleshy; the nucleus is flask-shaped, and protrudes a fungous circular expansion through the foramen. The fruit (fig. B, 5) is formed by the consolidation of the free scales of the cone into a solid fleshy mass of a depressed form and very irregular surface, owing to many of the scales being abortive, and crushed by those whose seeds are able to swell; while the ends of the whole retain their original form somewhat, are free, rather spiny, and constitute so many tough, sharp tubercles. The seed (fig. B, 6) is a pale-brown, shining, ovate, brittle nut, with two very slight elevated lines, and a large irregular hilium;

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* Since this was written, Sir W. Hooker has placed in my hands a sketch of the anatomy of the female flowers of Saxe-Gothæa, by Mr. B. Clark, who describes the ovule thus: "Its ovule has the same structure as that of Gnetum, as described by Mr. Griffith, viz.: it has three integuments; the internal protrudes, and forms a sort of stigma, not so obvious as in Gnetum; the external has constantly a fissure on its posterior, or rather inferior surface, which, however, does not close as in Gnetum when the ovule advances in growth, nor yet becomes succulent. Mr. Griffith describes the fissure in the external integument of Gnetum as constantly posterior; and if the ovules of the strobilus were erect, they would agree with Gnetum in this particular."

at the base it is invested with a short, thin, ragged membrane, which is the outer integument to its final condition. The nucleus lies half free in the interior, the fungous apex having shriveled up and disappeared.

Explanation of the Cuts.—A, a branch with male and female flowers, natural size; B, various details of the fructifications, more or less magnified; 1, a spike of male flowers; 2, a male or anther part; 3, a twig and young cone; 4, a scale seen from the inside with the inverted ovule, showing the fungous foramen protruding beyond the primine (outer integument); 5, a ripe fruit; 6, a seed showing the two slight elevations upon the surface, and the remains of the ragged primine at the base.—*Journal London Horticultural Society.*

MACHINERY AND METALS AT THE PARIS EXHIBITION.—An American ironmaster in Paris informs us that the French made a great display of steam-engines, iron planing machines, large tools, marine propellers, etc., and that they were mostly defective—curious, but not like American machinery, which is simple. Some of them were monstrosities. For instance, their fine-finished steam engines were badly proportioned, with a small and large cylinder to do what one would accomplish better than two. Strange to say, their propeller engines are geared, even those used in the 100 gun war-steamers. The same is true of British engines for the same class of vessels. They say that direct action engines have such large journals that the wear of the boxes is too great, and they find it better to gear them. At the same time they admit that there is often a total smash of their cog-wheels.

The show of metals in the Exposition was very extensive. They were wonders in the way of the sizes of masses, bars and sheets of iron. The English seemed to excel here the other Europeans. Yet some French samples were very interesting and nearly equal to the English. I saw bars of railroad iron from 80 to 90 feet long, sheets 30 feet long, 6 feet wide, and half an inch thick. Some of the Prussian works in cast steel were wonderful. One mass weighed 11,000 pounds.

In coals there was no show worthy of an American's attention. The samples were poor and thin. There is no coal in Europe that will compare with ours. There were few ores like our magnetic varieties on exhibition. Ah! if we Americans only appreciated the elements of a national superiority, over all the people of the world, which God has planted in our soil, our climate, deep in our earth, and in our running waters, if we only used them with a wise national economy, how wealthy and how powerful we would be. By-the-by, have I said that neither the English nor the French can, as far as I have observed, teach us anything in the great business of making iron?—*Albany Eve. Jour.*

AN ENORMOUS ROOM.—The largest reading room in the world is now nearly completed, in the British Museum. It is circular, 140 feet in diameter, and 140 feet in height. The tables will accommodate nearly four hundred readers. The wrought iron book-cases will contain 102,000 volumes. The cost of the room will be about $300,000.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

SCYTHE MAKING.

BY DANIEL JAY SPRAGUE.

However much the advancement of mechanical arts may be indebted to the increase of knowledge which characterizes our age, and to its newly developed skill, invention, and application, it is not much less indebted to the comparatively modern institution of Division of Labor.

Every department of business which calls forth human industry, whether mechanical or professional, is subject to this improvement. We do not expect to see the same person officiating both in the capacity of clergyman and lawyer, or astronomer and geologist, philosopher and mechanic, no more in the mechanical than in the mental world, should a single individual be expected to fulfill the duties of all departments. One studies the laws of mechanics, another the application; one forms the surgeon's knife, another puts the same in use.

This is so common and so much in accordance with ones own sense of propriety and economy, that we do not observe in these arrangements of professions, studies, and employments, a division of labor. Yet its existence is none the less true.

The field of knowledge is so rich and boundless that we should esteem a man beside himself did he think to make any profession especially his own and yet to become an adept in every other. Life is too short and art too long for man to make himself master of all the avenues of knowledge. Did he consider this a necessary preparation for the duties of life, he would find his three score years and ten to have passed away long before he was fitted for the arena of action.

I knew of a gentleman who had graduated at two American colleges, and had for several years studied botany in this and foreign countries; yet, notwithstanding he was one of the first scholars of the age, said he did not consider himself competent to take the entire professorship of a single species of bulbous plants.

By division of labor the time which is lost in learning an entire department of manufacture is lessened, and the amount of productive labor which a man in his life may effect much increased.

Division of labor advances the quality of that which is produced, since continued attention to one department gives greater perfection in that department. It also, by confining ones attention to a single portion of manufacture, leads to new inventions to shorten the process, and save time, labor, and expense.

As in philosophical investigations, if one individual gives his whole mind and attention for years to a single department he attains a greater degree of knowledge, delves to a deeper, profounder depth, and brings from the more obscure veins richer thoughts than he who but skims the surface, or turns his mind now to this and now to that study; so in mechanics let a person give his attention to one operation, and he will not only perform that more perfectly, but will also suggest some method to shorten the time, or some invention by which machines shall perform the labor of the hands, and thus, perhaps, will open a new field of employment to other individuals. The adoption of the principles of division of labor has been for years past continually on the increase. The pin, the needle, the lock, and the loom, though formerly each was produced by the labor of a single individual, must now pass through its score or more hands before they are finished and prepared for use.

Thus, by an instrumentality which at first thought may appear comparatively trivial, great results in the mechanical arts are with ease acccomplished, and each new invention or operation becomes a fresh testimonial that ours is an age of progress.

I have been led to these remarks on division of labor by recently noticing a practical application of the principles to the manufacture of scythes, by A. V. Blanchard, of Palmer, Mass. A partial description of the manufactory I will attempt to give:

The first process in scythe making is called the welding process; it consists of two pieces of steel, each of which is about three-fourths of an inch wide and three inches long, the one of cast-steel, for the back, to stiffen and give strength; the other of German steel for the edge. These are placed side by side, and folded in a piece of iron six inches in length and two in width; thus making the metal which constitutes one scythe to be a mass about three inches in length, two in width, and one and a half thick, weighing less than a pound.

Since a mass of these dimensions would be inconvenient and almost impossible to shape under the trip-hammer, which is the only kind used in forging the scythe, it is not cut from the bar of iron in which the steel is folded till it has first been drawn to about two feet in length, and is then in such a shape as can be conveniently handled.

This little rod of iron and steel is then passed in an exceedingly rough state to a second class of hands called the jointers. It is their duty to smooth it in a degree from the indentations of the first process under a lighter hammer and draw to about three feet in length, leaving the whole thickness equal to the back of the instrument when finished.

By the folding of the steel in the iron a twofold advantage is gained, viz., the steel and iron are more readily incorporated in one mass, and the steel is brought into the center of the scythe where it is needed, having the iron on both sides to give it shape and strength. Thus along the edge of the whole rod may be distinctly seen, by the difference of the metal, the steel inclosed by the iron. The upper corner of the rod is then cut off, making it slightly pointed, when it is ready for the third process called plaiting. This consists in drawing to a proper thinness the web, as it is called, which includes all except the back, and in shaping the back giving to it the form and curvature of the instrument, first suggestive of what is being constructed.

There must here be exercised no little skill to properly reduce the thickness of the metal and yet preserve the just relations throughout, since it might easily be distorted so that the steel would be almost entirely exposed, or separated from the iron, and consequently one part of the instrument might cut well and another part possess little of the cutting qualities.

When a proper thinness is attained the fitters curve the blade, which is the fourth process of manufacture, and it is ready for the next class of hands.

After plaiting and fitting, the back is set up. This is done by a singularly-contrived double hammer. It is so formed that the weightier part of the hammer, having its configurations reciprocal to those of the anvil, as it falls gives the particular inclination desired to the middle portion between the edge and the back, while another part, by the elevation of the first and by the motion of the beam to which the hammer is attached is drawn up, as it were, against the anvil, and thus turns up the back nearly at a right angle. By this means, from a flat bar of steel, that which seems to be the most difficult part in the construction of the scythe is accomplished by a single blow. This process in the manufacture is called, from the large share which it performs, the *finishing* process, since it nearly finishes the shape of the part between the heel and point. These yet remain straight.

The sixth process consists in finishing the point, twisting it up or down, as needs be, so that it shall be straight with the edge, and also in turning the heel and claw, by which it is fastened to the snath. The name of the manufacturer and the kind of scythe is then stamped on by the action of a single die. The scythe is now forged, and the shape complete.

Several attempts have been made to diminish the amount of labor and shorten the time required for the construction, but as yet none have proved successful. A gentleman is now studying to invent a machine by which these results shall be accomplished. His success or failure remains yet to be demonstrated.

The next process is hardening and tempering. In common usage these words have the same signification, whereas in reality their meaning is quite different. The hardening is effected by heating the scythe to a red heat, and then suddenly cooling by dropping into water. This makes the metal extremely hard and brittle. It is like glass, which, though much harder than our cutlery, has notwithstanding little of the cutting qualities. Therefore were they prepared for use in this condition, they would be of little value. They must be tempered, or, as the word itself denotes, *toughened*, so that the edge will not so easily break out.

After hardening, and before tempering, I noticed that the workman pounded the edge and broke from each scythe a small piece near the heel and point. The object of this, he said, was to see the steel and examine its quality. I learned also that the fineness of all steel depends not alone on the ore of which it was made, but upon the hammering and proper working of the metal. A good workman may obtain from poor ore as good and perhaps better metal than a poor workman can from the very best.

In manufacturing well-wrought steel, it is first heated to what is called white heat, and then hammered till cold. It is then heated a little more than red, and hammered till cold. Afterward it is heated again to a still lower degree, a cherry red or pink heat, and then hammered as before till cold; the number of different heats and hammerings giving to the metal its finer or coarser quality. Thus, thought I, not unfrequently is it with mankind—the best metal is that which has been the most pounded.

The process of hardening may be performed at any time, and requires comparatively but little skill; but tempering requires not only a good degree of knowledge of the art, for such it may be styled, but also much skill and experience, and is best accomplished in the night-time or in a dark room. Scythes are tempered by drawing them back and forth over a hot fire till the steel assumes a certain reddish tinge, readily discerned by the workman, though it cannot be easily described. They are then permitted gradually to cool, which fixes the temper a little lower than when first taken from the fire. The hardening process leaves the temper too high; the second heating draws down or lowers it.

Color is not the only test of temper, but it may be ascertained in many other ways. Sometimes they are heated to such a degree that when spit upon it will roll off like oil, without noise; or, when a drop of water is let fall upon it, there will be given a peculiar snapping sound. Another method is to heat to such a degree that oil, when poured on them, will just blaze. There are several other different modes, each perhaps peculiar to each mechanic.

The Damascus sword-blades, which have a world-wide celebrity for their temper or toughness, were tempered by heating them to a cherry red heat, and then were taken into the open air and swung around till cold. The quality of the steel, however, was also superior to that of the present day. It is related that the method in which this peculiar temper was first learned was, like very many other discoveries, entirely by accident.

An old commander, who had lost his sword in battle, went to the manufacturer, and in great haste ordered another to be immediately made. It was no sooner forged than he seized it, while yet hot, and mounting his steed, continually flourished the sword over his head till cold. It was afterwards found to possess a temper superior to any before made, and consequently suggested this mode of tempering, which subsequently became of very general use throughout that country.

There are many different kinds of temper, each tool requiring one of its own. To razors and surgical instruments is given the highest, to the axe and chisel a lower, and to springs the lowest. Scythes require a temper nearly as high as that of a razor, but the quality of the steel is inferior; consequently to obtain an even temper through the entire length of so long a cutting instrument is a labor demanding much care, and workmen of superior skill. Scythes also need a different edge from that of a razor. To the latter is given as smooth an edge as possible, while to the former is given a rough edge somewhat like that of a sickle. A fine smooth edge is not suitable for a scythe, since it soon becomes so gummed by the juices from the grass that it cannot cut. It is, however, requisite for all the finer cutlery, and for this reason, together with the fact that they contain but little metal, and are liable to become distorted if thrown into water, some are both hardened and tempered in oil.

A proper temper effects the ease and smoothness with which an instrument cuts. There are two cutting utensils, says the farmer, of which I wish the best quality, namely, a scythe and a razor, for to use a poor one of either kind well-nigh takes a man's life. The one draws the sweat, and the other draws the tears.

After the shaping and tempering of the scythe is finished, the next operation is to grind them. Each scythe is ground three times. They are first rough ground, as the workman terms it, which consists in bringing them to an edge; next they are ground across the edge, the object of which is to straighten it; lastly they are smooth ground, which exposes the steel about a quarter of an inch in width, the entire length of the instrument, and leaves them nearly to an edge, but not sharp enough to cut with careful handling. How many times, when a boy, have we sweated over the little rickety grindstone, and wished scythes might be bought at the stores sharp as razors. Often, too, have we looked at this exposed portion of the steel and remarked how large a proportion of the scythe was nothing but iron, then we moralized for a time on the deceitfulness of mankind, and finally summed up our little-satisfactory discourse with the not altogether pleasing inference that there were cheats in all trades but ours.

After grinding, the scythes are rinsed in lime-water to prevent rusting before they are finished. The stones used in grinding are of immense size, weighing from forty to fifty thousand pounds, and require six or eight men to hang them. When new, the stones just coming from the quarry are exceedingly rough, and therefore are turned off till smooth, after which the edge is filled with grooves about an eighth of an inch deep, crossing each other in every direction, the object of which is to make them wear away the steel more rapidly. When in use, these stones make nearly one hundred and eighty revolutions a minute. They are put in motion and brought to rest very gradually, since from the weight to be moved and the great momentum they acquire, there is danger of bursting. The strength of new stones is tested before they are used by putting them in rapid motion and leaving them for several hours.

With the greatest care and best regulations, stone will sometimes burst and fatal results follow, though the occurrence is by no means as frequent as formerly. This doubtless results in some degree from the exercise of greater care, also from the use of green instead of dry timber in fastening them to the axis, and improvements in the mode of fastening.

The grinding is the most unhealthy part of the manufactory of scythes. It is unhealthy because minute particles, worn from the stones and the steel, are thrown off into the air, which in the vicinity of the operator becomes saturated, as it were, with it, and in breathing they are inhaled and deposited upon the lungs. These particles are depósited so rapidly *that it is estimated* a man who constantly follows the business would not *live more than from* four to seven years. Indeed in some sections there is a disease which is called the grind-stone consumption. On the lungs of persons who have died of this disease have been found pieces of grit from the stones as large as a walnut. Many means have been tried, by applying bandages to the mouth and nostrils, and otherwise, to prevent the ingress of these particles, but with little advantage.

In grinding a man is required to have his whole weight upon the scythe, and it is thus liable to become twisted; therefore they are next examined and straightened, after which they are ready for the subsequent process of polishing.

This is done with the common emery-wheel, which is a wooden wheel prepared for the purpose by spreading upon it a coating of glue which is thickened with emery—a dark colored sand—and made to revolve at the rate of two thousand revolutions a minute.

Emery is one of the varieties of corundum, obtained for the most part from Europe, though an inferior quality has been obtained from our own country. It is found in Saxony, in a mountain called Ochsenkopf, near Schneeberg, and also in the islands of the Greek Archipelago.

After polishing, the scythes are painted or oiled, to prevent rusting, put up in dozen bundles, wrapped first in paper and then in straw and are prepared for market.

In this manufactory are annually produced about two thousand dozen of scythes, making use of about thirty tons of iron and one of steel. This iron is all obtained from Norway or Russia, it being thought superior to the American article.

For a time the Salisbury, Conn., iron was used, and considered equal to the imported, but in later years it has become inferior by the mixture of other ore. It is much to be regretted that, while the mines of the United States contain an abundance of superior ore our citizens should be compelled to patronize that of foreign countries, simply because of the frauds and deceits of money-catching producers at home.

In this establishment is annually consumed in carrying on its operations nearly ten thousand bushels of charcoal and fifty tons of anthracite coal

The wind for the five or six forges is supplied through a pipe little more than two inches in diameter, by a simple blow-wheel of only twenty inches driven by water so as to make sixteen hundred revolutions in a minute. Employment is here furnished to fifteen or twenty men, each of whom is paid by the dozen for the amount of labor performed. The welders, platers, and temperers each receive twenty-five cents a dozen, and can finish ten dozen a day, making their daily wages two dollars and a half. The grinders receive the same wages per dozen, but usually cannot finish so large a number as those in other departments.

Upon the whole the receipts of these workmen are even better than those of not a few professional men, and the inducements presented to the mechanic in our country are in a sense superior to those of the scholar. I have drawn at some length, this sketch, illustrative of the principles of division of labor and their application, believing that the time thus spent in the study of the practical to be of infinitely more value than that of mere abstract theories.

It is one thing to know that an article *is* produced and fitly prepared for use, but quite another to know *how* it was produced and rendered thus perfect. Of the latter kind of knowledge our world has far more need than the former.

NEW BUILDING BRICKS.

A PATENT has been secured by Mr. Edgar Conkling, of Cincinnati, Ohio, for a new form of brick. Several plans have been devised of late for securing strength to brick structures. Bricks of the ordinary form have, of necessity, a considerable space between them, filled by mortar, and yet exposed to the weather, and severely acted upon by rains and frosts. These bricks are so constructed, with apertures in the interior of the wall, though upon the surface of the brick, that the mortar is thoroughly defended from the force of storms, while it also gives an increased strength to the wall in resisting lateral

Fig. 2

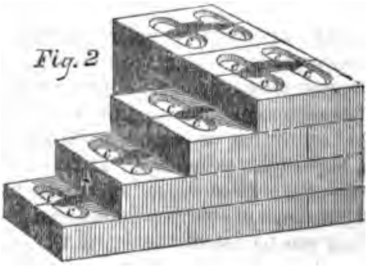


Fig. 1

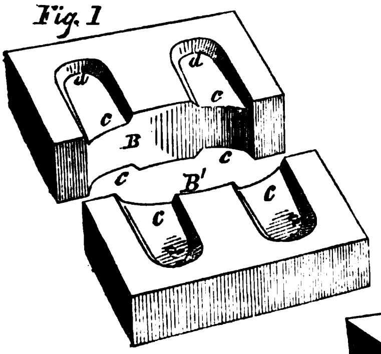
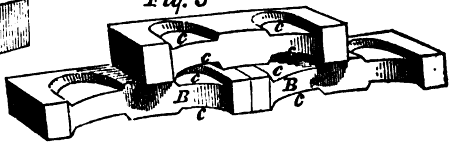


Fig. 3



pressure. The wall thus built is perfectly solid, while the bricks are laid close to each other, and yet are firmly bound together by a sufficient quantity of mortar. Models of these bricks may be seen at this office.

In the annexed engravings, fig. 1 shows the form of the improved bricks separately; fig. 2 exhibits their appearance when laid in a wall; fig. 3 is a section of wall.

The inner edges of these bricks, B, are made a little concave. The surfaces are formed with cavities, *c*, the back parts of which are the deepest as at *d*. With these exceptions the surfaces are made flat in the usual manner, and come in contact like ordinary bricks. In laying a wall the top surface of each course is to be washed over, by means of a white-wash brush, with a thin coat of grouting or cement, or covered with a thin stratum of slush mortar. Grouting is then poured into the interstices, which in consequence of the openings formed by the cavities in the brick, has abundant opportunity to circulate among them, and forms the strongest kind of binding. In putting up house fronts, no pointing is required to be done, and no discoloration of the surface is occasioned. No more time is required in laying these bricks than the ordinary form, as Mr. Conkling informs us, while there may be a saving in the mortar. These bricks make a strong wall. It is conceded by some masons that a 12 inch grouted wall is equal to one of 16 inches mortar laid.

We are told also that there is no difficulty either in the molding, pressing or burning of these improved bricks, and no increase of expense. If the usual care is taken in sorting out from the kilns, the proper proportion of bricks that are sufficiently true and even for fronts will generally be found.

We commend this invention to the attention of builders, and shall be happy to aid them in making experiments with them to their satisfaction. We shall probably have more to say of these bricks hereafter.

ENGLISH PATENTS.

An Improved Mode of Preventing the Alteration of Bank Bills from one Denomination to Another.—One of the most common methods of counterfeiting bank notes or bills consists in erasing the figures which indicate the denomination of the note, by rubbing with the hand or otherwise, and reprinting or pasting upon the surface so prepared, other figures indicating a higher denomination. Thus, the word or figure "five" may be erased, and upon the surface which it occupied "fifty" or "one hundred" may be printed. Alterations of this description easily deceive the public, as, when well executed, they can be detected only by the initiated, and upon very close examination. To render this species of alteration impossible, by affording to the initiated a ready means of easily detecting it if practised, is the object of the present invention, which consists, in so imprinting into the body of the paper, the character or words which indicate the denomination of the note or bill, that it can only be erased by the total destruction of the paper, and cannot be replaced or imitated even if it were found possible to erase it. This is accomplished, either by a process analogous to that which is known in the manufacture of paper as "water-lining," or by printing the paper as it is manufactured, with the required characters or figures, by a peculiar process, which causes the color to penetrate entirely through the body of the bill or note, so that it cannot be removed without destroying the texture of the paper itself.

During the process of manufacturing the paper, and while yet in a soft pulpy state, it is imprinted with characters or letters indicating the denomination of the bill, "five" for a five pound note, "ten" for a ten pound note, and so on, for notes of other denominations. This may be accomplished in various ways, as follows: First, by water-lining in the ordinary way, with wire secured to the vellum, so arranged as to impress the required characters upon the paper; or the same effect may be produced by means of types, slightly raised upon the surface of a cylinder, which is caused to bear upon the web of paper while it is still soft and impressible, and thus indent the required characters into the body of the paper,—the velocity of the surface of the cylinder being exactly equal to that of the web of paper as it passes through the machine. To render the characters thus produced more apparent and striking, they may be imprinted upon the soft pulpy paper in colors, and in such a manner as will insure the color sinking deep into and entirely penetrating the body of the paper. This is readily accomplished by means of a cylinder, similar to that above described, having upon its surface points set close to each other in lines forming the desired figures, and sufficiently elevated to penetrate the paper whilst it is yet in a soft pulpy state. These points are charged with ink of the required color, which is transferred (as the cylinder revolves) to the paper, into the body of which it penetrates. The holes made by the points are instantly closed by the pressure rollers, to which the paper is afterwards subjected, and the coloring is thus caused to penetrate entirely through the note, and consequently cannot be removed for the fraudulent purpose before mentioned.

NEW MODE OF SEPARATING CERTAIN VEGETABLE FIBRES FROM MIXED FABRICS FOR VARIOUS USEFUL PURPOSES.—This invention, which has reference to the treatment of fabrics composed partly of animal and partly of vegetable fibres, as, for example, any fabrics containing woolen or silken filaments in connection with flax or cotton, has for its object to utilize the refuse of such fabrics, by separating the vegetable fibre therefrom in such manner that either the vegetable fibre or the animal fibre may be obtained in an integral or solid state, or a state of solution; or the nitrogen of the animal fibre may be evolved for any manufacturing purposes for which the fibres or nitrogen respectively have hitherto been or may be found serviceable. To this end the patentee avails himself of the properties of caustic alkalis and alkaline earths, on the one hand, for decomposing the animal matter in the fabrics without affecting the vegetable fibre, and of the property of acids, on the other hand, with which, by the assistance of heat, a disorganization of the vegetable, without injury to the animal fibre, is affected.

To separate the vegetable fibre, in an integral condition, from the mixed fabrics, by dissolving the animal matter, the fabric is simply boiled for a sufficient time in a solution of caustic alkali or alkaline earth; soda or lime is preferred for this purpose; but any other alkali or alkaline earth may be substituted with efficacy.

To separate the nitrogen of the animal fibre in the fabrics in a form available for manufacturing purposes, the material to be operated upon is placed in a close vessel of the kind ordinarily used in the manufacture of ammonia, together with such a quantity of alkali or alkaline earth as may be found sufficient to effect the decomposition of the animal matter. Heat is then applied to the mixture in any convenient manner, but preferably by passing steam, at a high pressure, through the whole mass of fabrics; and the ammoniacal vapor which is evolved by this process is condensed by passing it into an acid, and thus forming a sort of ammonia; or by passing it into water, and thus forming an ammoniacal liquor, from which the nitrogen may be readily separated.

In order to separate the animal matter from the fabrics in the form of a solid, the materials to be operated upon are placed, together with the alkali or alkaline earth, in an open vessel, and heated to about 180° Fahr. The resulting liquor is drawn off and treated with a stream of carbonic acid, or with a sufficient quantity of any other acid, to neutralize the alkali or alkaline earth. By the above process, the animal matter contained in the fabrics will be precipitated in the form of a fine powder, which may be collected in a filter and dried for use. The quantities of alkalis or alkaline earth necessary to effect the decomposition or solution of wool, will vary with the sample of rags to be operated on, because some rags contain more animal matter than others: but when the ordinary stuff-goods are employed, it may be said, in a general way, that from three to four cwts. of soda, or from six to seven cwts. of lime, will be required for the treatment of every ton of goods. When alkalis, in preference to alkaline earths, are employed for the treatment of the mixed fabrics, the said alkalis may be recovered for the purpose of obviating waste, by the process of evaporating the refuse liquor to dryness, and heating the sediment to a red heat, or by boiling the liquors with fat, so as to form the well-known compound soap. When the animal matters in the fabrics are required to be preserved intact, the separation is effected by wetting the material with a solution of an acid—being either a vegetable acid (which the patentee prefers using,) as tartaric or oxalic acid—or a mineral acid, as sulphuric, muriatic, or nitric acid, and heating the wetted mixture in a suitable chamber, by means of a jet of steam, or in any other suitable method, to the temperature of 300° Fahr.; by which process the vegetable fibre will, in a very short time, become disorganized and rotten, so that the animal fibre may readily be separated by any suitable mechanical contrivance; as, for instance, when the said animal fibre is woolen, the wool may be combed out by means of a carding machine, which will refuse the vegetable matter as dust.

IMPROVEMENTS IN THE MANUFACTURE OF PLAIN AND ORNAMENTAL WOVEN FABRICS.—This invention consists in constructing plain and ornamental woven fabrics with a warp or weft, or both warp and weft, composed of yarns or threads twisted in contrary directions, that is,—some of such yarns or threads being twisted in one direction, and the others of such yarns or threads in the contrary direction; and in giving to all or some of such yarns or threads more than the usual amount of twist; so that when moisture is applied to the fabrics, the action of such moisture on the yarns, twisted in manner aforesaid, may cause the same to curl, snarl, or shrink, and thereby produce fabrics similar to crape. Except in twisting the yarns or threads in manner aforesaid, they are spun and prepared in the usual way.

In carrying out their invention the patentees prefer to make use of a loom with a drop-box of the ordinary construction. When the weft of the cloth only is intended to consist of threads twisted in contrary directions, a warp made of yarn spun as usual is put into the loom, and two shuttles are required, each containing weft with sufficient twist—so that when moistened the twist shall cause the weft to shrink, snarl, or curl. The weft in one of the shuttles is twisted to the right hand, and that in the other to the left hand. In weaving such a cloth, it is preferred that two shoots of weft, twisted to the right hand, should be put into the cloth, and then two shoots of the weft twisted to the left hand, and so on alternately until the piece of fabric is completed. When the fabric is taken out of the loom it is in appearance like muslin, or any other plain fabric; but on the application of moisture, the curling or snarling of the weft causes the fabric to shrink or contract in width, and to assume an uneven surface, somewhat similar to that of crape. Modifications in the weaving of such cloth may be adopted according to the quality and the object for which the fabric may be required; thus, the proportions of the yarns or threads twisted in opposite directions may be varied, and three shuttles may be used; one containing ordinary weft yarns or threads, and the other two containing weft yarns or threads twisted in contrary directions, and with more than the usual amount of twist, as above described.

In weaving with three shuttles, the three shuttles may be thrown across the shed in any required succession, for the purpose of producing the desired effect. For instance, two picks may be given with the ordinary weft, then two with the right hand twisted weft, and then two with the left hand twisted weft. The warp of a cloth may also be composed of yarns or threads twisted in contrary directions in any desired proportion—the whole or some of them having more than the usual amount of twist. The weft of such a cloth may be composed of ordinary yarns or threads, and woven in the usual manner; or the weft may be composed of any of the combinations of yarns or threads hereinbefore described.

When fabrics have been woven according to this invention, they may be bleached, dyed, or printed in the ordinary manner, and the uneven surface craping or crimping is then produced by the action of the moisture which is necessarily imparted during either of the said processes; but if the yarns or threads of which the improved fabrics are woven have been previously bleached, dyed, or printed, it is evident that the uneven surface craping or crimping must then be produced by the direct application of moisture.

It may be desirable to stretch or distend the fabric, in order to obtain a plain surface for printing upon, and to keep the fabric stretched or distended until the colors printed upon it are dry. The uneven surface may then be produced by the application of moisture; by which means an ornamental fabric of a chené description is obtained. All or some of the warp or weft threads, or of both the warp and weft threads, may be colored or parti-colored before they are woven. The process of printing may also be performed on the uneven surface of the fabric. Fabrics may be woven, having a loose or floating back, or with black-lashed threads, and a crape face produced in the manner before described. The invention may be used in producing fabrics of cotton, silk, wool, worsted, or other fibrous material, or any combination of any two or more of such materials.

The patentees claim constructing the warp or weft, or both warp and weft, of woven textile fabrics, whether plain or ornamented, of yarns or threads twisted in contrary directions—the whole or part of such yarns or threads having more than the usual amount of twist for the purpose of producing fabrics having craped or crimped surfaces, in the manner described.

An Improved Construction of Spurs.—The object of this invention is so to construct spurs as to permit of their being fitted on to boot heels of various diameters. For this purpose the clasp of the spur is constructed of two arms, which are jointed to a central-threaded stem that carries the rowel of the spur. By the pressure on the inner ends of the arms of a nut or button which works upon the thread on this stem, the span of the arms is contracted, and the firm attachment of the spur to the heel of the boot is effected.

IMPROVEMENTS IN THE TREATMENT OF RAGS AND OTHER GOODS FORMED PARTLY OF WOOL AND PARTLY OF VEGETABLE FIBRES, IN ORDER TO SEPARATE THE VEGETABLE FIBRES FROM THEM, AND OBTAIN THE WOOL IN ITS PURE STATE.—This invention applies to tissues or other fabrics (whether rags or pieces of new goods) composed partly of wool and partly of vegetable fibres, and consists in a mode of removing the vegetable from the woolen fibres, and thereby obtaining this latter in a suitable state for manufacturing purposes; the same, consequently, offers an easy mode for removing the threads from rags with which the seams, button-holes, or other parts have been sewn. The rags or other goods, after the same have been cleaned to a certain extent, by any of the known means, are put into an acid bath (whether cold or suitably heated,) containing one *hundred parts* (by measure) of water; from four to five parts of common *sulphuric acid* of commerce; and about one part of alcohol; and in this bath they are left as long as required for disintegrating sufficiently the vegetable fibres. The goods are then removed from the acid bath; after which, the greatest part of the liquid is pressed out, and the goods are dried by any suitable means —care being taken to spread them out as evenly as possible. When dried, they are submitted to a beating engine, or other contrivance, for removing the woolen fibres from the partly-decomposed vegetable fibres that might still adhere to them; after which the wool is to be thoroughly washed in water, or in a weak alkaline or soap bath, in order to deprive it of acid; it is then again dried, and in this state will be ready to be prepared for spinning or other manufacturing purposes.

The patentee claims the mode of submitting tissues or other fabrics composed partly of woolen and partly of vegetable fibres, to a bath of diluted sulphuric acid, to which a small portion of alcohol is added; by the action of which bath, and of the processes above described, the vegetable fibres are readily removed from the wool, and leave this latter in a state fit for being again employed for spinning or other manufacturing purposes.

AN IMPROVED MANUFACTURE OF BEARINGS FOR CARRIAGE AXLES AND SHAFTS OF MACHINERY IN GENERAL.—This invention relates to the manufacture of bearings from leather, to be used in place of brasses and other metallic bearing surfaces; the object being to render the bearing surfaces of blummer blocks and axle-boxes more durable and less costly than heretofore. In carrying out this invention, ox or cow hides are preferred, either tanned, tawed, or otherwise prepared; and for one class of bearing, the hides are cut up into pieces of suitable size for lapping half, or nearly half, round the journals to which they are to be applied. These pieces are compressed in half-round moulds to bring them severally to shape; and the required thickness of bearing is obtained by cementing two, three, or more thicknesses of leather together, piling them in layers one above the other, and then submitting the combined thicknesses of leather to pressure in a suitably-shaped mould for the purpose of solidifying the same. These bearing surfaces may be backed or cased with metal.

IMPROVEMENTS IN THE CONSTRUCTION OF ANCHORS.—This invention consists in forming the shank of the improved anchor of two plates of iron or other metal, kept apart throughout the whole or a portion only of their length, by means of a filling-piece of wood or other suitable material, or by means of suitable enlarged portions of the plates themselves. The shank is united to the arms either by a forelocked pin or pins, or by clinched-bolts or by screw-bolts, according as the arms are intended to be moveable about a center or otherwise. When the filling-piece is used, a metal collar is made to embrace the two plates and the filling-piece, which forms the shank, for the purpose of combining them more effectually at their junction with the arms, which may be made flat and of an uniform thickness, or of any other desired form.

IMPROVEMENTS IN THE MANUFACTURE OF ORNAMENTAL PAPER AND PAPER BANDS.—This invention relates, first, to the manufacture of paper, showing the pattern of a reticulated or woven fabric upon it. This ornamental appearance is obtained either by the introduction of lace, or other open woven fabric, into the body of the paper, during the process of manufacture, or by subjecting colored paper, either pulp-dyed or surface-colored, or enamelled, to great pressure between metallic-plates or rollers, while a piece of lace, or other fabric, of the pattern desired to be imparted to the paper, lies in contact therewith; whereby an indentation of the threads is produced on the surface of the paper.

The paper ornamented by the introduction of the open textile fabric during its manufacture, is also greatly strengthened thereby, and rendered particularly applicable to the manufacture of bands for wrapping up lace or other articles; its application to which manufacture forms the second part of the invention.

The web of bobbin-net or other open textile fabric, is introduced into the substance of paper, at the time of its manufacture from the pulp, in the following manner: A web of net, of any suitable width, and of any required or convenient length, having been obtained, it is wound upon a reel or cylinder, mounted near the paper-making machine, as hereafter described. The description of paper-making machine employed, is that known as the cylinder or air-paper machine, which was the subject of Letters Patent formerly granted to John Dickinson.

The second part of the invention relates to the production of various patterns, in imitation of lace and other textile fabrics, upon colored papers, whether pulp-dyed, surface-colored, or enamelled. For this purpose, the lace or other fabric, the pattern of which is required to be reproduced upon paper, is cut into pieces of a size rather larger than the sheets of colored paper to be operated upon, and stretched upon open frames, and satur ted with size or animal glue, which will enable them better to withstand the pressure to which they are to be subjected; when dry, they are cut to the size of the colored paper and applied to the surface of the same, and subjected to great pressure between flat or cylindrical metallic surfaces, as is commonly practiced in glazing or milling papers; and, in consequence, those parts of the paper which are in contact with the filaments of the lace or other ornamental textile fabric, are exposed to a greater pressure than those parts where no such filaments intervene between the pressing surfaces, and the coloring matter upon them becomes more condensed, and is consequently rendered darker; so that the pattern of the lace or other ornamental textile fabric is produced in a darker shade of the color with which the paper is tinted; and if the paper be held up to the light, these darker portions, which constitute the pattern, will (owing to their being more condensed) appear less opaque than the ground color. In thus ornamenting enamelled or surface-colored papers, it is preferred to apply the lace or ornamental textile fabric to the side of the paper which has not been colored.

Improvements in Metallic Pistons.—These improvements consist in a method by which the piston-rings of metallic pistons can be tightened up whenever required, without the labor of taking off the cylinder cover and junk-ring of the piston; at the same time insuring equal pressure upon each spring or other power required to force out the piston-rings during the process of tightening; to this end a plug is fitted into a round hole in the center of the piston, and grooved with the same number of grooves as there are springs in the piston. These grooves are not cut parallel with the outside of the plug, but deep at one end and run out to nothing at the other—forming an inclined plane or wedge; the bolts, which are connected to the springs, rest in these grooves. When the piston is first inserted, they are placed in the deepest part of the groove or bottom of the incline. Through the plug a screw is inserted, having a conical collar, which is fitted and ground into the inside of the junk-ring of the piston; a square head to the screw going through and extending about one-and-a-half inches outside of the junk-ring. In the center of the cylinder cover a hole is made for the insertion of a box spanner, which fits the head of the screw that extends out of the junk-ring. When the piston requires tightening up, the plug in the center of the piston is caused, by the spanner, to retire inwards, and the bolts attached to the springs are forced to a greater distance from the center of the piston, by the inclined grooves in the plug; thus tightening up the springs.

In vertical engines, or other machines where the piston is accessible only from the top, a center-screw and plug cannot be placed, but four or more screws, (according to the number of springs in the piston,) working in wedges, are inserted for tightening the rings, upon the same principle.

THE RAIL-BIRD.—ITS MIGRATIONS.

Much discussion has been elicited of late through the medium of the newspaper press in Virginia and elsewhere, in regard to the appearance and disappearance of the Sora, Ortlan, or Rail-bird, to and from the marshes and flats that line the rivers which empty their waters into the Atlantic. Those birds are quite numerous in the months of August and September. As far back as 1822, myself and several other youths conceived it rare sport to push one another about in small skiffs, waist-deep in water, among the reeds on the flats of the Delaware, at high water, to shoot rail, as we called them there. They were an easy prey, even to juvenile marksmen. On dark, cloudy days we found them much fleeter on the wing, requiring more skill in shooting them than on a clear day with bright sunshine.

As late as the year 1840 I found sufficient inducement for many days to follow rail shooting until the 5th of October, at which time they nearly disappeared from our flats, save a few that doubtless had been wounded by the legion of sportsmen constantly seeking their destruction.

A few days after the above period I started on a gunning and fishing excursion, near a hundred miles down the peninsula or eastern shore of Maryland, on the marshes and flats of the streams that empty their waters into the Chesapeake, south of the gunning locality of the Delaware. I was there somewhat surprised to find the rail quite plenty, but for a few days only. After remaining there for a week they were as scarce and hard to find as they were when I left the Delaware.

They take to flight in the night, as they cannot see by daylight. I have heard their cheerful voice in flocks over my head in the night, winging their way southward, no doubt alighting as they approach a suitable place, or as daylight appears, obstructing their vision. They keep down where it is somewhat dark, among the grass and reeds, hunting food, and their continuance in a place is governed by the quantity and quality of food, and the non-appearance of frost, which they appear to dislike and flee from.

Now there is no doubt that if I had continued my journey into the Carolinas, after their disappearance from the Chesapeake, I should have found them there,—migrating still further south as the frost approaches them, till they get beyond the reach of it, where they breed, and where their young are grown.

They commence their annual migrations northward in the night, passing from marsh to marsh along the rivers, and from river to river and bay to bay, reaching the middle States about the 1st of August.

Thomas Champion.

VOLCANIC ERUPTION

OF MAUNA LOA, IN THE SANDWICH ISLANDS.

[The account of this eruption is too intensely interesting to be passed in silence. We extract liberal portions of a letter from Hilo, published in the *American Journal of the Arts and Sciences*, from an eye witness, Rev. Mr. Coan. He says:]

"For sixty-five days the great summit furnace on Mauna Loa has been in awful blast. Floods of burning desolation have swept wildly and widely over the top and down the sides of the mountain. The threatening stream has overcome every obstacle, winding its fiery way from its high source to the bases of 'the everlasting hills,' spreading in a molten sea over the plains —penetrating ancient forests—driving the bellowing herds, the wild goats and the affrighted birds before its lurid glare—consuming all vegetable life with its sulphurous breath, and leaving nothing but blackness and ruin in its track.

On the 12th of July I wrote you on the state of old Kilauea, and on the 27th of Sept., I announced to our mutual friend, Mr. Lyman, the fact and the state of our present eruption. Having made my quarterly pastoral tour, I started on the second instant for the scene and the source of the eruption which is the theme of this letter. Our party consisted of Lawrence M'Cully, Esq., a graduate of Yale and our present acting magistrate, four natives and myself. Taking the channel of the Wailuku (the stream which enters Hilo bay) as our track, we advanced with much toil through the thicket along its banks, about twelve miles, the first day. Here we rested at the roots of a large tree during the night. The next day we proceeded about twelve miles farther, for the most part along the bed of the stream, the water being low. During both of these days volcanic smoke had filled the forest and given the rays of the sun a yellow and baleful hue.

At night, when the shades gathered over those deep solitudes, unbroken except by the bellowing of the untamed bull, the barking of the wild dog, the grunt of the forest boar, the wing and the note of the restless bird, the chirping of the insect, the falling of a time-worn tree, the gurgling of the rill and the wild roar of the cataract, we made our little bed of ferns under the trunk of a prostrate tree, and here, for the first time, we found that the molten stream had passed us by, many miles, on its way toward Hilo. But as its track was several miles to the left of us, and as the jungle here was nearly impenetrable, we proceeded the next day up the stream, and at half-past one P. M., found ourselves fairly out of the forest, having been a little more than two and a half days in accomplishing this part of the tour.

I cannot stop to describe the beautiful and romantic scenery along our winding valley gorge, the cascades, basins, caves, and natural bridges of this wild and solitary stream. Nor can I speak of the velvet mosses, luxuriant creepers hanging in festoons, the ancient forest trees and other tropical glories which were mirrored in its limpid waters. We needed an artist and a naturalist to fix the glowing panorama, and to describe its flora and fauna. Wild cattle, dogs and hogs of the mountains have penetrated these forests and have appeared, of late, on the very confines of improvement within five miles of our bay.

But to proceed. When we emerged from the upper skirts of the woods on the third day, a dense fog obstructed our view of all distant objects. We encamped early in a cave, but during the night the stars came out and we could see the play of the volcanic fires from the summit to the base of the mountain and far down in the forest toward Hilo. The next morning, Friday, we left our cavern early, and at half-past seven, A.M. came to the smouldering lava-stream. From this time to ten A.M., we walked on the right border of the stream, when we crossed over to the opposite side. This occupied us an hour and a quarter, and we judged the stream to be three miles wide at this point, which, however, was one of its "*narrows.*" In some places it spread out into wide lakes and seas, apparently from five to eight miles broad, inclosing, as is usually the case, little islands not flooded by the fusion. Passing up the southern verge of the stream we found many trees felled by the igneous current, and lying crisped and half charred upon the stiffened and smoking lava. All this day we passed up the stream, sometimes on it and sometimes along its margin, as the one or the other track was the easier or the more direct. At night we slept upon the lava, above the line of vegetation, with the heavens for our canopy and the stars for our lamps. From this high watch-tower we could see the brilliant fire-works far above and far below us, as the dazzling fusion rushed down its burning duct, revealed here and there by an opening through its rocky roof, serving as a vent for the gases.

Early on Saturday, the 6th, we were ascending our rugged pathway amidst steam and smoke and heat which almost blinded and scathed us. At ten, we came to open orifices down which we looked into the fiery river which rushed furiously beneath our feet. Up to this we had come to no open lake or stream of active fusion. We had seen, in the night, many lights like street lamps glowing along the slope of the mountain at considerable distances from each other, while the stream made its way in a subterranean channel, traced only by these vents. From 10 A.M. and onward, these fiery vents were frequent, some of them measuring ten, twenty, fifty or one hundred feet in diameter. In one place only we saw the river uncovered for thirty rods and rushing down a declivity of from 10° to 25°. The scene was awful, the momentum incredible, the fusion perfect, (a white heat), and the velocity forty miles an hour. The banks on each side of this stream were red-hot, jagged and overhanging, adorned with burning stalactites and festooned with immense quantities of filamentose, or capiltary glass, called "Pele's hair." From this point to the summit crater all was inexpressibly interesting.

Valve after valve opened as we went up, out of which issued "fire and smoke and brimstone," and down which we looked as into the caverns of Pluto. The gases were so pungent that we had to use the greatest caution, approaching a stream or an orifice on the windward side and watching every change or gyration of the breeze. Sometimes whirlwinds would sweep along, loaded with deadly gases, and threatening the unwary traveler. After a hot and weary struggle over smoking masses of jagged scoria and slag, thrown in wild confusion into hills, cones and ridges, and spread out over vast fields, we came at 1 P.M. to the terminal or summit crater.

This we found to be a low, elongated cone, or rather a series of cones, standing over a great fissure in the mountain. Mounting to the crest of the highest cone, we expected to look down into a great sea of raging lavas, but instead of this the throat of the crater at the depth one hundred feet was clogged with scoria, cinders and ashes, through which the smoke and gases rushed up furiously from seams and holes. One orifice within this cone was about twenty feet in diameter, and was constantly sending up a dense column of blue and white smoke which rolled off in masses and spread over all that part of the mountain, darkening the sun and obscuring every object a few rods distant. So toppling was the crest of this cone, so great the heat, and so deadly the gases, that we could find no position where we could look down the throat or orifice; and could we have done so, it is not probable that we should have seen the deep fountain below us, as the lavas were forced up its horrid chimney from the burning bowels of the earth. I have no doubt that the point at which the igneous river flowed off in its lateral duct was at least five hundred, perhaps a thousand feet below us.

The summit cone which we ascended was about one hundred feet high, say five hundred feet long and three hundred broad at base.

Several other cones below us were of the same form and general character, presenting the appearance of smoking tumuli along the upper slope of the mountain. As you descend the mountain these cones become lower and less frequent, but here they are the rims or jagged jaws of those orifices through which we look into that subterranean tube of angry fusion which hurries with such fearful speed down the side of the mountain.

The molten stream first appears some ten miles below the fountain crater, and as we viewed it rushing out from beneath the black rocks, and, in the twinkling of an eye, diving again into its fiery den, it produced indescribable feelings of awe and dread.

This summit crater I estimate at twelve thousand feet elevation; the principal stream (there are many lesser and lateral ones) including all its windings, sixty miles long; average breadth, three miles; depth, from three to three hundred feet, according to the surface over which it flowed.

Late on Saturday afternoon we came a short distance down the mountain, when we encamped on the naked rocks until Monday.

Unwittingly we passed the last watering place in our ascent on Friday morning, at seven o'clock, and having only one quart in our canteen, this was our whole supply until 9 A.M. on Monday. There being six of us, we were soon reduced to a single spoonfull each, and this only at our meals. Our food being dry and hard, we suffered not a little for want of nature's beverage. The dew which fell upon our garments, our food-buckets and the rocks around us congealed and became frost or thin scales of ice, and from our oil-cloth, spread for the purpose, we collected a few spoonsfull of the latter, while our parched lips readily kissed the rocks to obtain a little moisture from the frost. There was snow on another part of the mountain, far below us, but it was not in our track. The fires had melted all in this region.

The present eruption is between those of 1843 and 1852, and from our high tower we could see them both and trace their windings.

Early on Monday we decamped and set our faces for Kilauea, distant some thirty-five miles, hoping by a forced march to reach it at night.

At eight A.M., we passed the seat of the grand eruption of 1852, and traveled for miles in its cinders. A little steam only issues from that cone whose awful throat, in 1852, sent up a column of *glowing fusion to the* height of a thousand feet.

At the base of this cone, on the opposite side, the ground was thickly powdered with a hoar frost, and so intense was our thirst that our whole party lay down together and eagerly licked it from the rocks and sand.

At nine we found water, for which we gave heartfelt thanks to our great Shepherd. At one P.M., a dense fog obscured our track, our guide lost his way, and we were obliged to encamp.

Early on Tuesday morning we were astir, wandering through jungle and over rough fields of scorie, when fortunately at half-past nine we found the only track which could lead us out of this cruel labyrinth.

At half-past one P.M., we reached old Kilauea, where we regaled ourselves on Ohelo berries, water, and such stores as were left in our larder.

The next day we explored Kilauea, made some measurements, collected specimens, etc., and on Thursday, the 11th inst., we reached Hilo, having been absent ten days. Kilauea is still very active, though not as intensely so as in months past.

On the mountain and in Kilauea I took the angles of several lava streams, one of 49°, another of 60°, and two of 80° each. Several streams on the mountain flowed down banks of scoria twenty-five and thirty feet high.

The fusion was complete—the streams cooled in a perfect state.

I also saw thin strata, say one inch thick or less, which had flowed down the face of perpendicular rocks, adhering to the rocks like paste, and thus cooling. Will you say that I spoil my demonstration by *proving too much*, when I assert that I saw more than on place where the fusion flowed on an angle of 95°—like the Indian's tree which grew so bolt upright that it "leaned the other way,"—thus flowing down a rock or bank until it came to where said rock *retreated*, it would follow the inward curve in a thin layer like molasses, adhering to the rock and thus cooling. It is therefore a fact capable of entire demonstration that our Hawaiian lavas flow freely down every slope, from an angle of 30′ to a perpendicular—in the latter case in a very thin layer of course. At one point we saw the great igneous river flowing like oil down an angle of 35°, and in another place it leaped a precipice, forming a brilliant cascade.

But I lack time and space to tell you half which we saw, and heard, and felt.

Hilo is now in a state of solemn and thoughtful suspense. The great summit fountain is still playing with fearful energy, and the devouring stream rushes madly down towards us. It is now about ten miles distant—nearly through the woods, following the right bank of the Wailuku, and heading directly for our bay.

Some are planning, some packing, many running to and fro, and all talking and conjecturing. Never was Hilo in such a state before. And all is hushed and solemn.

Oct. 22.—I have retained this letter until the present time, to watch the progress of the lava stream and to report more definitely; and I am happy I happy to say that as yet our fears have not been realized. The great summit crater still pours out its burning floods with unabated energy, and the atmosphere of the island is still loaded with smoke; everything looks dingy, often baleful. The stream of fusion still glows and groans in the forest between us and Mauna Loa; but its intensity seems a little abated and its progress retarded. Probably it is partially obstructed or diverted in its subterranean passage, while the basins, ravines, gorges, etc., it fills in the woods, together with the great forest which it must consume, render its progress very slow. Consequently the apprehensions of our people are much abated. There has been nothing like panic from the beginning, either among foreigners or natives; but there was an anxious look, an inquiring tone, a serious concern among all classes. These have greatly subsided; not that the fire is extinct, or that it is not nearer than it was two weeks ago; but simply that its progress for the last week has been almost imperceptible. Still it may come when least expected. Should it succeed in pushing through the woods it will then flow down on an angle of from 1° to 2° with little to obstruct it; or, should it dive into subterranean chambers, it may burst out unexpectedly near our shores.

It is now seventy-two days since the eruption commenced, and, as remarked before, the fountain is in full force. The matter disgorged is of the same general character as in former eruptions. We saw nothing new. Among the salts, sulphur and sulphate of lime, are the most abundant. They are scattered freely at several points along the line of flow.

There are now about a dozen open lakes of raging lavas in Kilauea, extending in two semi-circular-lines from the great fountain lake—*Halemaumau*—along the eastern and western sides of the crater, and evidently forming vents to igneous subterranean canals which are carrying the incandescent floods from this great active vent to the northern parts of the crater, sometimes overflowing this region and sometimes heaving up the ponderous superincumbent strata, like the surface of an agitated ocean. The great dome over Halemaumau is swept away, and a raised and jagged rim from 20 to 60 feet high, now encircles it. The fusion may be 100 feet below. The movement of the streams northward is distinctly seen through the valves or vents mentioned above. The great central plateau of 200 feet elevation as mentioned in my last letter, is now nearly covered with fresh lava from the overflowing of its fiery zone—or of that half which surrounds it, and to which the recent action has been confined. This belt or lava zone has been raised from 100 to 200 feet since April; 1st, by uplifting forces; 2d, by successive overflowings.

The commencement of this eruption is mentioned in an earlier letter from

Mr. Coan, addressed to Rev. C. S. Lyman, of this place. It is dated Hilo, Sept. 27, 1855. He says:

"On the evening of the 11th of August, a small point, glowing like Sirius, was seen at the height of 12,000 feet on the northwestern slope of Mauna Loa. This radiant point rapidly expanded, throwing off corruscations of light until it looked like a full orbed sun." The sequel is described in the letter above.

The Colossal Washington Monument for America.—The London *Builder* gives the following account of an important step in the progress of this work:

The casting of the horse for this monument at Munich, is one of the great feats of modern foundry, as fifteen tons of bronze had to be melted and kept in a state of fluidity. For several days and *nights previously* a large fire was at these huge masses, which required *to be stirred at times.* When the bronze was liquified, an ultimate assay was *made in a small trial* cast; and to heighten the color some more copper was added. Successively all the chambers through which the metal had to flow in the form were cleared of the coal with which they had been kept warm, and the master examined all the air spiricles and the issues of the metal; the props of the tubes were then placed and every man had his duty and place assigned to him. Finally, the master, amid the intense expectation of the many art amateurs present, pronounced the words, "In the name of God," and then three mighty strokes opened the fiery gulf, out of which the glowing metal flowed in a circuit to the large form. The sight was magnificent, and in the little sea of fire stood the master, and gave his commands about the successive opening of the props. Hot vapor poured from the air spiracles; in the conduits, the metal boiled in waves; still no decision yet, as the influx of the bronze in the very veins of the figure could be but slow. At once flaming showers jumped out of the air conduits, and the master proclaimed the cast to have succeeded. A loud cheer followed, when the master approached Mr. Crawford, the artist of the Washington Monument, to congratulate him on this success. Another cheer was given to M. de Miller, the chief of the royal foundry of Munich, who has personally conducted the work.

Manufacture of Watches.—A watch is no longer, as it was formerly, an object of luxury, destined exclusively for the rich; it has become an article of the first necessity for every class in society, and as, together with the increased perfection of this article, its value has in the same time considerably diminished, it is evident that a common watch, which will exactly indicate the time of the day, is actually, by its low price, within the reach of almost every individual, who will likewise feel anxious to possess one.

For this reason, and in proportion as commercial and maritime relations are extended and emancipated from the trammels in which the great central marts of commerce have involved them, so will distant nations become civilized; and it may be fairly anticipated that the art of watch-making will form part of the great current of improvement.

The number of watches manufactured annually in Neufchatel may be calculated from 100,000 to 120,000, of which about 35,000 are in gold, and the rest in silver.

Now supposing the first on an average to be worth $30, and the others $4, it would represent a capital of $1,390,000, without taking into consideration the sale of clocks and instruments for watch-making, the amount of which is very large.

The United States of America consume the largest quantity of those watches. With the exception of gold and silver for the manufacture of the watch-cases, the other materials for the construction of the works of mechanism of the Neufchatel watches are of little value, consisting merely of a little brass or steel. The steel is imported from England, and is reckoned the best that can be procured; the brass is furnished by France.

With respect to gold and silver the inhabitants of Neufchatel have had for a long time no other resource but to melt current money, until they received gold from England, which the English merchants receive from California.

The number of workmen who are employed in watch-making is estimated at from 18,000 to 20,000, but it is difficult to arrive at the exact number, as the population employed carry on the business in their own houses.

The spirit of adventure is very strong among the inhabitants of the Jura Mountains. A great many of them have traveled into very remote countries, whence some have returned with considerable fortunes.—*Merchant's Magazine.*

Ship Building in New-York.—The New-York *Courier & Enquirer* submits its annual statement of the business done in ship building at that port, which shows that the past has been a year of depression in the ship yards unexampled within a generation. Amongst the causes assigned for this are the European war, the falling off in the California and Australian trade, and the overbuilding in the last few years. Many master ship-builders had become bankrupt, owing not so much to the increased wages demanded by their workmen, as by the forfeitures to which they were subject in not getting their work completed in time, from the men not continuing steadily at their work. The following is a comparative return of the new ships launched in the present and past years:

	1854		1855	
	No.	Total Ton.	No.	Total Ton.
Steamships,	19	24,600	4	11,100
Other steam vessels,	23	5,967	4	2,200
Ships,	30	39,380	6	9,130
Barques,	7	3,600	7	3,376
Brigs,	8	2,551	3	1,275
Schooners, etc.,	21	5,292	13	3,786
Total,	108	81,390	37	29,867

There are also now on the stocks 17 vessels of all sorts, with an aggregate tonnage of 21,720 tons.

Experiments with Potatoes.—The question being often asked, which variety of potatoes is most profitable for field cultivation, on the 16th of last May I planted a field with eight kinds, in eight successive plats, the rows running through each successive plat—soil rather thin, manured alike lightly in the hill—crop moderate. On October 10th, dug twelve hills of each kind, counted and weighed. The following is the result:

Peachblow—180 tubers, weight 25 pounds—seed small, 2 tubers to each hill.

California—104 tubers, weight 24 pounds—seed large, cut in 6 to 8 pieces, 2 to each hill.

Torries—138 tubers, weight 23¾ pounds—seed large, cut in 8 pieces, 2 to each hill.

Black Mercers—220 tubers, weight 20 pounds—seed small, 2 to each hill.

English Whites—156 tubers, weight 18¼ pounds—seed small, 2 to each hill.

Merinos—100 tubers, weight 17 pounds—seeds large and cut.

Pinkeyes—116 tubers, weight 16½ pounds—seed small, 2 to each hill.

Lilacs—125 tubers, weight 16 pounds—seed small, 2 to each hill.

This is the result of one trial; other trials may produce different results, that is, lead to further experiments.—A. YEOMANS, *in Country Gentleman.*

IRON YARDS FOR SHIPS.—Some novelties are observable in the fitting out of the Australian Black Ball ship Schomberg. Her 'tween decks are fitted up with iron berths throughout, which have a pretty and light appearance. Her iron tanks are fit to carry either water or provisions, and while they are able to bear any weight placed upon them, they act as permanent ballasts for the ship. The foreyard of the vessel is a hollow iron tube, made of quarter inch plates. It is 96 feet in length, 23 inches at the slings! greatest circumference, 6¼ feet. It weighs 4 tons—a wooden spar same size would weigh 8½ tons—an important advantage in favor of the iron yard, especially when its durability is also taken into consideration. The first cost is a little more than wood.—*Liverpool Mail.*

PORTRAIT OF CHARLES I, BY VELASQUES.—We have seldom been more favorably disappointed than we were on visiting this picture. It is undoubtedly an original. No copyist could make such a representation on canvass. It bears all the tests of a close or distinct view, of inversion and of the magnifier. The last, the magnifier, brings out its excellencies in a most wonderful manner. The eyes are eyes, the hair is hair, and the flesh is flesh. We have seen many of the works of the old masters, but we have never seen a portrait which bore more unequivocal and unquestionable evidence of the hand of a great master than does this. The proprietor is a gentleman not only of courteous manners but thoroughly versed in the history and condition of this department of art.

PRODUCTS OF THE INDUSTRY OF BOSTON.—The returns to the Secretary of State of the products of the Industry of Boston, for the year ending June 1, 1855, as compiled for the Boston Almanac, shows that iron, exclusive of that for nails, was manufactured to the value of $1,525,000; steam engines and boilers, $1,835,000; iron railing, iron fences, safes, etc., $562,500; glass-ware, $1,190,000; piano-fortes and other musical instruments, $1,984,700; watches, gold and silver ware, and jewelry, $617,000; saddles, trunks, harnesses, etc., $757,200; brushes, $225,000; upholstery, $1,550,800; sails, of American fabric, $431,172; sugar refined, $2,000,000; chair and cabinet ware, $1,068,800; tin-ware, $416,500; linseed oil $500,000; camphene and burning fluid, $500,000; flour, $870,000; boots and shoes, $193,000; building stone, $323,000; marble prepared, $311,000; horses, (4,800), $761,625; cows, (132), $5,405; casks, $158,600; distilled liquors, $2,495,000; beer, $238,000; friction matches, $50,000; bakeries, $935,000; clothing, *eight million five hundred thousand dollars!*

Dentistry.—We have had occasion to notice several specimens of workmanship of this description, by Dr. A C. Castle, of 296 Fourth street, opposite Washington Square. He has great experience and practical skill, and there is no dentist for whose fidelity we should be more ready to indorse than his. Services of this kind are so difficult, and often expensive, and for a life-time, that it is of the greatest importance that they should be done well.

NEW BOOKS.

Our Cousin Veronica, or Scenes and Adventures over the Blue Ridge. By **Mary Elizabeth Wormley.** New-York: Bunce & Brother. 12mo. $1 25.

The author of "Amabel" has already the very highest of recommendations. This book is a fit companion for its predecessor. It is less highly wrought, but by no means dull or tame. The scene is principally in Virginia, partly in England. The descriptions are graphic and natural, and the story is capital. Miss Wormley must be set down, unquestionably, among the most gifted writers of fiction.

A Year Book of Agriculture; or, the Annual Agricultural Progress and Discovery for 1855 and 1856. By **David H. Wells.** 1856. Philadelphia: Childs & Peterson. 400 pages, 8vo.

This book is just what we anticipated on its announcement—a concise, clear statement and pescription of the various improvements in agriculture and its kindred sciences during the year, fully and well illustrated. It should be on every farmer's table, and carefully studied, for it is a work of great practical value.

Woodworth's Youth's Cabinet and Uncle Frank's Dollar Magazine. Edited by **Francis C. Woodworth**, assisted by "Francis Forrester" and "Aunt Sue."

The external appearance of this popular magazine is much in its favor. It is well printed on good paper, well stitched, etc. This encourages us to look inside, for we do like to see books well printed, especially those for children and youth. It aids in forming a good taste and neat habits. Mr. Woodworth is just the man to publish a journal of this sort. He has just the right bumps for it; and as he gives much time and careful attention to it, always interests his readers. He is well sustained also by assistants, and those who wish for a youth's magazine cannot do better than to order this forthwith.

$1 a year; 4 copies, $3 50; 5 copies, $4; 8 copies, $6. 118 Nassau st.

Sense and Sensibility. A Novel. By Miss **Austen**, author of Pride and Prejudice, etc. New-York: Bunce & Brother. 1856. 309 pages.

A novel of no little interest, of the fashion published in our youthful days, by a pleasant writer.

Camp Fires of the Red Men; or, a Hundred Years Ago. By **R. Orton.** Illustrated by Walcutt. New-York: J. C. Derby. 1855.

In this volume Mr. Orton takes some of the exciting scenes of Indian life in the last century to form the web of a curious romance. Those who are fond of this style of excitement will be entertained by it. It is well written and well executed.

Lanmere. By Mrs. **Julia C. Dorr**, author of "Farmingdale." New-York: Mason Brothers. 1856. 447 pages.

Those familiar with "Farmingdale" are not disappointed in this work. They expected a good book, and they have one of the very best stories we have ever seen. Little Bessie is brim full of interest, nothing exaggerated or disproportioned, but natural to the life. Mrs. Allison vexes us, while she is perfectly consistent throughout, and unhappily represents too many of great pretension. Debby is worth her weight in gold, while several other characters are drawn with great ability. The plot is intricate and ingenious, yet almost developes itself, and the work cannot fail to be read very extensively.

Jackson and New-Orleans; an Authentic Narrative of Memorable Achievements of the American Army under Gen. Jackson before New-Orleans in the winter of 1814 and 15. By **Alexander Walker.** New-York; J. C. Derby. 1856. 411 pages.

The campaigns of Gen. Jackson are brilliant specimens of generalship; and the Battle of New-Orleans is prominent over all others. This effort to extend the knowledge of this chapter of our history cannot fail to interest a multitude of readers, and will assist in disseminating a true understanding of the events of this period through the community. The volume is well executed.

NEW MUSIC.

Wm. Hall & Son have the following choice pieces among their extensive recent publications, viz.:

"The Dreams of Youth." Ballad by W. J. Robson. Composed by J. W. Cherry. Simple and very pretty.

"Florence Vane"—ballad. Composed by W. Vincent Wallace. Good of course, and not difficult.

Quadrilles for the piano-forte. Composed by Alphonse Leduc. These include "Fall of Sevastopol," "Battle of Inkerman," "Expedition to the Sea of Azoff," "Battle of Schernaya," and "Capture of the Malakoff." Good, and characteristic, but requiring a strong hand to do them justice.

List of Patents Issued

FROM TERMINATION OF PREVIOUS LIST TO JAN. 8.

Erastus Bigelow, Boston, improvement in looms for weaving pile fabrics.

Jonathan L. Booth, Cuyahoga Falls, O., improvement in grain-cleaning machines.

T. C. Bush, New-London, Conn., improved saw set.

Wm. E. Cooper, Dunkirk, improved nozzle for exhaust pipes of locomotives.

Frederic W. Capen, Newton, Mass., for improvement in paddle wheels.

Joseph C. Day, Hackettstown, N. J., improvement in fire-arms.

Spencer B. Driggs, Detroit, improvement in piano-fortes; dated December 11, 1855; patented in England, November 1, 1855.

John Gourlay, Ogdensburg, for adjustable crank-brace for augers.

Henry C. Green, Clarence, Wisconsin, improved automatic feed motion for saw-mills.

A. M George, New-York, for improvement in spike machines.

H. B. Horton, Akron, O., machine for registering music.

Wm. W. Johnson, Clifford, Pa., machine for planing fellоes.

Eber Jones, Troy, improvement in mould for casting bells.

S. B. McCorkle, Greenville, Tenn., for improvement in machines for stuffing horse collars.

Thomas Danforth, Roxbury, for improvement in window shades.

Isaac Davis, Mechanicsburg, Ohio, for improvement in machinery for whipping hair.

Soranus Dunham, North Bridgewater, Mass., for improved method of hanging saws.

Henry F. and Louis A. Gossin, Thibodeaux, La., for improvement in steam boiler furnaces.

John Griffen, Safe Harbor, Pa., for improved manufacture of wrought iron cannon.

Bishop J. Harris, Auburn, Pa., for improved mode of dressing mill-stones for scouring and hulling buckwheat.

Reuben Hurd, Spring Hill, Ill., for improvement in seeding machines.

Jno. P. Hale, Kanawha Court House, Va., for improvement in apparatus for making salt.

Benj. Hill, Rochester, for improvement in paddle-wheels.

Westel W. Hurlbut, Boonville, for improved method of hanging circular saws.

Alexander Lightheiser, Reading, for improvement in machines for mincing meat.

Wm. H. Merrill, of Taunton, for improvement in hoisting blocks.

Charles Miller, Carroll Township, Pa., for improvement in hulling machines.

Henry M. Parkhurst, Perth Amboy, for improvement in proportional dividers.

Adolphe Pecoul, Marseilles, France, for combined log and sounding line.

Newell A. Prince, Brooklyn, for improvement in fountain pens.

Ezra Ripley, Troy, for improvement in mills for grinding grain, &c.

James Robb, Lewiston, Pa., for improvement in corn-shellers.

John P. Rollins, Boston, for improved extension bit.

E. K. Root, Hartford, Conn., for improvement in revolving fire-arms.

Geo. W. Smith, Mauch Chunk, for improvement in looms for weaving wire.

Gilbert Smith, Buttermilk Falls, for improvement in breach-loading fire-arms.

Thos. B. Stout, Keyport, N. J., for improvement in corn and cob mills.

Ancil Stickney, Concord, N. H., for improvement in hand seed planters.

Isaac D. Wheelock, Maysville, Wis., for improvement in sad iron heaters.

Wm. Wilber, New-Orleans, for improvement in hydraulic oil presses.

Charles H. Butterfield, Nashua, assignor to Amory Houghton, Boston, for improvement in guards for lanterns.

Charles Evans, Charleston, Mass., 'assignor to himself and George K. Goodwin, Roxbury, Mass., for improvement in revolving grates.

Issued from the United States Patent Office, for the week ending Jan. 1, 1856 each bearing that date.

Philo Brown, Waterbury, Coon., for improvement in furnace for soldering.

Nathan Chapman, Mystic River, Conn., for improved chain for power press.

James Cochrane, New-York, for improved method of operating and lubricating slide valves.

Richard M. Cole, Reading, Pa., for improvement in brick presses.

Geo. W. Cooper, Ogeechee, Ga., for improvement in ploughs.

Jean Pierre Molliere, Lyons, France, for improvement in machines for polishing and burnishing the edges of soles and heels of boots and shoes; dated Dec. 11, 1855; patented in France, Jan. 5, 1855.

Jean Pierre Molliere, Lyons, France, for improvement in machines for mounting the "uppers" of boots and shoes on lasts; dated Dec. 18, 1855; patented in France, August 19, 1854.

Oldin Nichols, Lowell, and Amni M. George, Nashua, for improvement in stone-dressing machines.

Daniel Parish, New-York, for improvement in instruments for modifying focal length of the eye.

Isaac N. Parker, Lewiston, Me., for improvement in mill spindle steps.

Samuel Pelton, New-Windsor, Md., for improvement in horse powers.

George B. Pullinger, Philadelphia, for improvement in automatic gate for railroad crossings.

John P. Robinson, Mattawan, for plane for finishing grooves in patterns, &c.

Joel Tiffany and Milo Harris, Painesville, Ohio, for shingle machine.

Thomas F. Thornton, Buffalo, for improvement in organ melodeons.

Hubert Schonacker, Detroit, for improved pianofortes.

Julius E. Schwabe, New-York, for improvement in treating Galena or lead ore.

Eliphalet S. Scripture, Green Point, N. Y., for improvement in attaching hubs to axles.

Isaac Searles, Newark, for improvement in felting hat bodies.

Isaac Spaulding, Saratoga Springs, for improved saw set.

Samuel Shattuc, Henrietta, O., improved horse collar.

Isaac N. Singer, N. Y., improvement in sewing machines.

Jos. Weis, Bordentown, for improvement in suckers for pumps.

Thomas Bowles, New-York, assignor to Robert M. Patrick, of same place, for improvement in locks.

Jeremiah Burnite, Puseyville, Pa., assignor to himself and James Clark, of same place, for improved arrangements and combinations of machinery for regulating velocity of wind wheels.

John Healy, Bolton-le-Moors, England, assignor to James Bishop, New-Brunswick, N. J., for improvement in woven fabrics; dated Dec. 18, 1855; patented in England, Nov. 17, 1846.

Joseph B. Lancaster, administrator of John R. Lancaster, deceased, of Tampa, Florida, for improvement in cooking stoves.

Elijah Richmond, Abington, Mass., assignor to Ira Noyes, of same place, for improvement in lamp extinguishers.

Lewis O. Ashley, Troy, for improvement in candy mould apparatus.

Joseph Buhler, M.D., of New-York, for improvement in the pipes of a vapor bath.

Joseph Buhler, M.D., New-York, for improvement in the combination of injecting syringes,

Benijah J. Burnett, New-York, improvement in cranes.

George Byington, Rochester, for improvement in time indicators.

Bobert L. Currey, Philadelphia, improvement in double-acting steam brake.

Thomas Crane, Fort Atkinson, for improvement in rotary pumps.

Lebbeus Barnes, Islip Township, N. Y., for improvement in harvesters.

Chas. E. Brown, New-York, N. Y., for improved mode of hanging double doors.

Samuel W. Brown, Lowell, Mass., for improvement in constructing the bottoms of ships and other vessels.

Reuben Brady, New-York, N. Y., for improved machine for sheet metal bending.

Irah Chase, Jr., Boston, Mass., for improvement in coal scuttle covers.

Geo. St. Clarke, East Washington, N. H., for improvement in bee-hives.

Edgar Conkling, Cincinnati, O., for improvement in the form of building bricks.

Dominique Emile Coutaret, Boston, Mass., for improvement in disinfecting fecal matter.

Thos. Davidson, Jr., Kensington, Pa., for improvement in street paving machines.

Jacob Erdle, West Broomfield, N. Y., for improvement in filing saws.

Morris Falkeman, New-York, N. Y., Morris Pollak and Solomon Weiner, Hoboken, N. J., for improved watch key.

L. H. Gibbs, Troy, New-York, for improvement in breech-loading fire-arms.

Chas. Hammond, Philadelphia, Pa., for improvement in attaching hammer heads to shafts.

James Harrison, Jr., Milwaukie, Wis., for improvement in padlocks.

Samuel R. Jones, Baltimore, Md., for improvement in peg-cutters for boots and shoes.

Geo. L. Jenks, Providence, R. I., for improvement in machinery for making weavers' harness.

Jos. Johnson, New-Orleans, La., for improvement in manufacture of hats.

John F. Manahan, Lowell, Mass., for improved mode of burning wet fuel.

Hiram B. Musgrave, Cincinnati, Ohio, for improvement in gas cooking stoves.

Wm. C. Pancost, Geneva Township, Ohio, for improvement in cheese presses.

Chas. Phillips, Detroit, Mich., for improved machine for loading dirt cars.

Randal Pratt, Marple Township, Pa., for improvement in horse hay-rakes.

J. J. Savage, New-York, N. Y., for improvement in excavating machines.

Christopher D. Scropyan, New-Haven, Conn., for method of preventing bank notes, &c., from being counterfeited.

Gustavus Stone, Beloit, Wis., for improvement in blades of mowing machines.

Wm. Stoddard, Lowell, Mass., for mortising machine.

Abraham Straub, Milton, Pa., for improvement in machines for sawing marble obelisks.

John G. Snyder, Wheatfield, Pa., for improvement in seeding machines.

Abner Whitely, Springfield, Ohio, for improvement in candlesticks.

Wm. E. Wyche, Brookville, N. C., for improvement in cultivating ploughs.

Geo. W. N. Yost, Port Gibson, Miss., for improvement in corn harvesters.

James H. Merrill, Baltimore, Md., for improvement in fire-arms.

Henry Pease, Brockport, N. Y., assignor to himself and James Roby, of same place, for improvement in mowing machines.

John Reily, Hart Prairie, Wis., assignor to Talbot C. Doneman, Ottowa, Wis., John Heath, Sullivan, Wis., and John Reily, aforesaid, for improvement in harvesters.

John J. Crocker, Utica, for improvement in safety guard for railroad cars.

Benjamin Fenn, of Hartford, Ohio, for windmill.

Geo. P. Gordon, New-York, for improved printing press.

Benj. Groomes, Cumberland township, Pa., for improvement in repeating fire-arms.

Elijah Holmes, Lynn, Mass., for spoke shave.

Walter Hunt, New-York, for improvement in shirt collars.

Waterman B. Johnson, Sandwich, N. H., for improvement in machines for pegging boots and shoes.

Moses W. S. Kendall, Cincinnati, for improvement in smoke houses.

Phineas L. Slayton, Madison, Ind., for improvement in sewing machines.

Daniel Leibee, Middletown, Ohio, for improved gold amalgamator.

Charles N. Lewis, Seneca Falls, for improved pumps.

Orson E. Mallory, Castile, N. Y., for improved machine for making eave troughs.

John H. Manny, Brockford, Illinois, for improvement in harvesters.

Thomas R. Markillie, Winchester, Ill., for improved bed for lath sawing machines.

Joseph Marsh, Rochester, for improved sash lock.

James Neal and Charles W. Emery, Boston, for pumps.

I. J. Oldis, Wheeler, N. Y., for improved padlock.

Jos. Peevy, Passadumbeag, Me., for improvement in hay and cotton presses.

Charles Robinson and Charles T. Chester, New-York, for improvement in automatic electrical circuit breakers.

Thomas Stubblefield, Columbus, Ga., for improvement in steam boiler alarms.

John C. Smith, Camden, N. J., for improvement in repeating magazine fire-arms.

Ira F. Thompson, New-York, for improvement in velocimeters for vessels.

Geo. W. N. Yost, of Port Gibson, for improvement in grain binders for harvesters.

Andrew H. Ward, Jr., Boston, for improvement in compositions for treating wool.

Hiram C. Wight, Worcester, for improved arrangement of feed rollers for planing machines.

Geo. Williamson, Brooklyn, for hydro-pneumatic pump for diving bells.

Joshua Turner, Jr., Charlestown, Mass., assignor to Warren Covell, Dedham, Mass., for improvement in the manufacture of leather shoe bindings.

Cullen Whipple, Providence, assignor to the New-England screw company, of same place, for improvement in screw machines.

Philo Marsh, South Adams, Mass., assignor to himself, and Shubael W. Howland, South Acton, Mass., for improvement in treating oils.

George A. Clarke, Philadelphia, assignor to Wm. Clarke of same place, for improvement in harvester raking apparatus.

RE-ISSUES.

Samuel Hurlbert, Ogdensburg, N. Y., for improvement in plows. Patented Sept. 20, 185[illegible]. Patented in Canada, Sept. 20, 1852.

Benj. F. Avery, Louisville, Ky., for improvement in plows.

N. Aubin, Albany, N. Y., for improvement in making illuminating gas.

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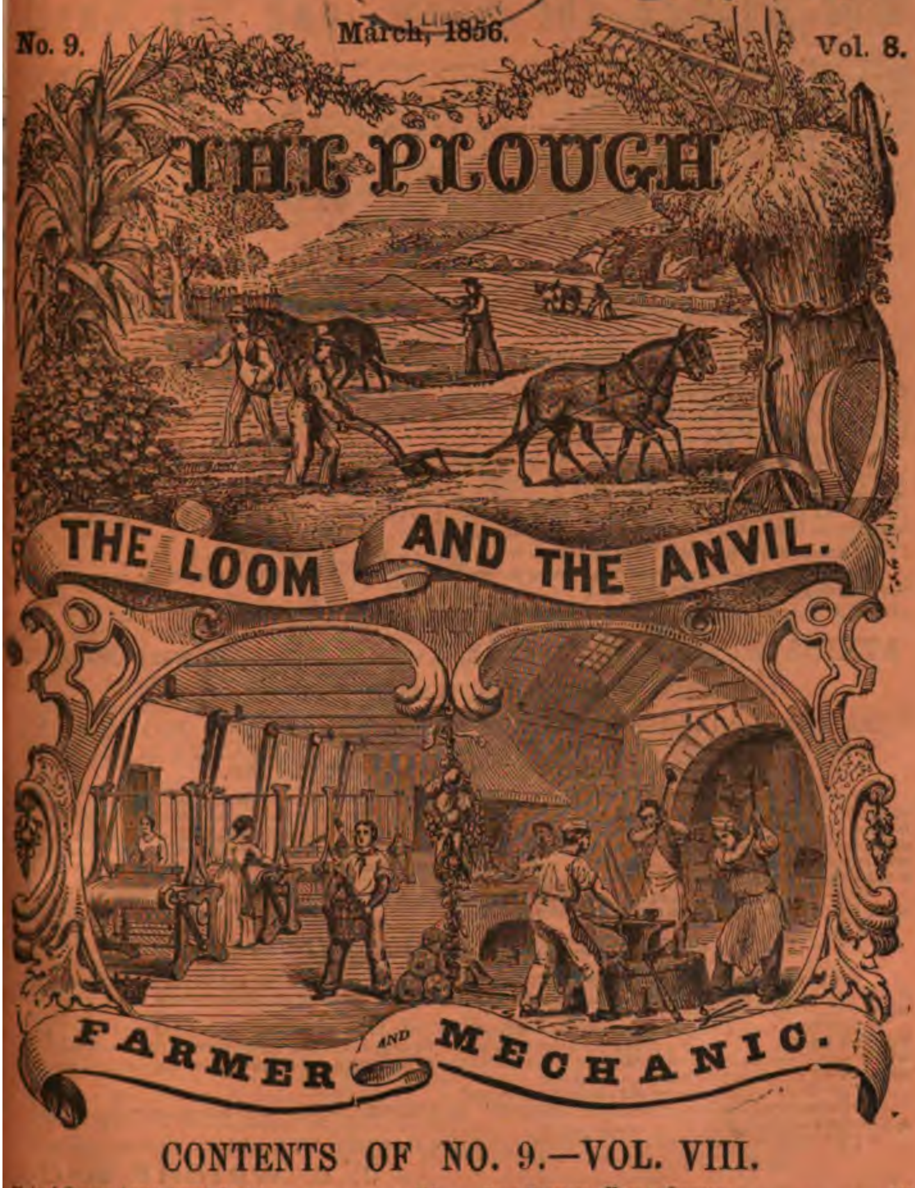
THE PLOUGH
THE LOOM AND THE ANVIL.
FARMER AND MECHANIC.

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J. M. GARRISON, Proprietor.

The Plough, the Loom, and the Anvil.

VOL. VIII. MARCH, 1856. No. 9.

UNITED STATES AGRICULTURAL SOCIETY.

FOURTH ANNUAL MEETING.

THE Society met at Washington in the Smithsonian Building at 10 o'clock on Wednesday morning, January 9th.

Hon. Marshal P. Wilder, of Massachusetts, the President, called the Society to order. Delegates presented their credentials from the Agricultural Societies of eighteen States and Territories. Between sixty and seventy delegates were present.

President Wilder then rose and delivered his annual address. He closed with an announcement of his intention to retire from the post of President.

B. B. French, Esq., Treasurer of the Society, made the following report:

Immediately on his election he had an interview with Wm. Selden, Esq., the former Treasurer, who handed over to him the books and papers of his office, and informed him that the only money in his hands was on deposit in the Bank of Selden, Withers & Co., then in the hands of Trustees, and consequently the funds were unavailable.

The sum on deposit is $2,149 42.

To secure to the Society the ultimate payment of the sum on deposit, Mr. Selden has placed in my hands, under the direction of the Society, three one-thousand dollar bonds of the "Allisonia Manufacturing Company," in Tennessee, as collateral security, for which I gave him a receipt, approved by the Executive Committee of the Society.

The Trustees of Selden, Withers & Co., have as yet made no dividend, although it is understood that they now have a considerable sum of money on hand subject to dividend, which but for a claim set up by the United States to be preferred over all other creditors, would be divided.

The only money that has come into my hands, except that received in Boston, amounts to $37 90.

During the five days of the Boston Exhibition I received as Treasurer $31,808 58. The amount paid out in premiums was $10,205 98. The other expenses amounted to $8,773 76; which, with the premiums, amounted to $19,069 74. Necessity compelling me to return to Washington, I passed over to the Pcesident all the money in my hands, who paid the remaining bills, amounting to $16,280 78, for which he has returned me vouchers.

In addition to the moneys paid over to the President by me, he received on account of sales, etc., $5,363 94, which, added to the sum received by me, makes an aggregate of $37,172 54; and, after deducting all the money paid out, leaves a balance of $1,822 12, which the President has paid over to me.

The entire available means now in my hands are $1,868 02.

I submit herewith my accounts current and all the vouchers.

I am informed by the President that there is still against the Society some bills for printing, and perhaps a few others, and there are premiums to the amount of $200 still unpaid, which, by the terms of the printed conditions, are forfeited, and probably will never be demanded.

The principal portion of the money in the Treasurer's hands is now on deposit in the "New-England Bank," Boston.

On motion, B. Perley Poore, of Massachusetts, D. Jay Browne, of the Patent-Office, and C. H. McCormick, of Illinois, were appointed Auditing Committee of the Treasurer's accounts.

On motion of Anthony Kimball, Esq., the President appointed a Nominating Committee, consisting of one from each State and Territory represented.

The President read a letter from Mayor Conrad, of Philadelphia, inclosing resolutions of the City Council, and requesting that the next annual exhibition of the Society be held in that city.

The proposition was accepted, and referred to the *Executive Committee* for the proper arrangement.

Discussion then ensued upon the expediency of holding exhibitions in those cities which would contribute the most to the treasury of the Society.

The President read a series of resolutions from the Illinois Legislature, asking appropriations from Congress for agricultural purposes.

After discussion these resolutions were referred to a select committee, consisting of Professor Henry, J. B. D. DeBow, Esq., and A. H. Byington, with authority to lay the subject before Congress.

D. Jay Browne, Esq., of the Patent-Office, then read the following paper:

ON THE IMPROVEMENT OF THE HORSE IN THE UNITED STATES.

The *Atlas Statique de la Production des Chevaux* gives some interesting details respecting the method of the "Administration" for obtaining the most correct information with regard to the number and quality of the various races of horses to be found in France. The Society or Administration for breeding this animal has divided that country into twenty-seven districts, which comprise two breeding establishments, twenty-four depots for stallions, and one for army horses. In order to arrive at an exact estimate of the equine population, persons especially chosen for the purpose were employed in 1850 to visit every stable, village, and canton in each arrondisement and department. The result of this census of horses demonstrates with sufficient clearness the progress and utility of these establishments. The advantages they afford in improving the breeds generally, as well as in giving increased value to the animals in a commercial point of view, are already appreciated by the French, and naturally lead to the suggestion of adopting a similar system in the United States for the improvement of the horses in our army, as well as for other purposes. If a depot for stallions of approved breeds were established by Government in each State and Territory in the Union for public use, free of charge, incalculable benefit would doubtless accrue to the country, and in less than ten years the improvement and increased value of the horse would be immense.

The question arises, how shall this change be brought about? Where are the horses to be obtained? At whose expense? And by whom shall it be accomplished? It has been suggested that it would very properly come under the direction of the War Department, with the view of providing for the future wants of the army, and that an adequate appropriation should be made by Congress for that purpose. With equal propriety it has been asserted that it could be done by the States themselves through their Agricultural Societies, Boards of Agriculture, etc. The breeding horses of one or both sexes could be imported in sufficient numbers and varieties from various parts of Europe, Northern Africa, and South America. In the selection of breeds, as to their adaptation to the economy, uses, and climate of the different sections of our country, it would require much investigation, practical knowledge, science, and discrimination. Whether such an enterprise can ever be brought about remains only for the public to decide.

The work referred to in the commencement was laid on the Secretary's table for inspection.

On motion the paper just read was ordered to be printed in the Secretary's transactions.

Capt. Van Vleit, United States Army, read a paper upon the Rocky Mountain Sheep.

Prof. Baird, of the Smithson Institution, exhibited specimens of the horns, hoofs, head, and hair of the Rocky Mountain sheep, and urged several reasons why the animal should be domesticated, stating that an appropriation of from $100 to $200 would induce some hunters about Fort Laramie to persevere in their efforts until several pairs of these animals could be obtained, which would be sufficient to warrant an attempt at their domestication.

Mr. D. Jay Browne spoke of the attempt to domesticate the buffalo and cross the breed with that of the tame cattle, and went into some details showing the doubtful success of the attempt. He moved to refer the whole subject to the Executive Committee.

Mr. B. P. Poore gave a description of an attempt his father made to domesticate imported sheep of a fine breed among the hills of Georgia. The result of the experiment was that most of the sheep died, and the shepherds who had been brought over to take care of them insisted that the reason of their death was that the country was too wild for them. Mr. Poore thought that if this country was too wild for the European sheep, it must be the very place in which the experiment of domesticating the mountain sheep would meet with the greatest success.

The paper of Capt. Van Vleit was ordered to be published, and Prof. Baird was requested to furnish a copy of his remarks on the subject for publication.

The project of the domestication of the Rocky Mountain sheep was referred to the Executive Committee.

D. Jay Browne, Esq., gave an account of a plan submitted to the Commissioner of Patents by a gentleman from Ohio to import for distribution large quantities of a superior kind Mediterranean wheat. This proposition could not be entertained, as the appropriation of Congress for that purpose had been exhausted. Mr. Browne therefore laid it before the Society, with the hope that some plan might be devised by which wheat might be imported by the Society and distributed all over the country in small quantities as an experiment, a report of the results to be forwarded to the Society.

A. Kimmel, Esq., thought that no subject was more important at this time than improvement in the quality of seed wheat and the selection of that kind that would yield the largest supply. The following resolutions were offered:

Whereas it has been represented that the wheat seed, procured from the shores of the Mediterranean and Black Seas, when cultivated in various sections of the United States, matures several days earlier than the ordinary varieties in use, and that said wheat not only proves to be more prolific in its yield, for the first few years at least, but possesses other valuable properties: Therefore, be it

Resolved, That the Executive Committee be empowered to import such quantities and varieties of said wheat as they may deem expedient, to be placed in proper hands for experiment, at least one bushel in a place, in every State and Territory, making it obligatory on the part of each experimentor to duly report to this Society the result.

Resolved, That said Committee be empowered, if thought expedient, to issue proposals for the importation of a cargo of wheat seed for the use of agricultural societies or individuals, on such terms or conditions as they may see fit to prescribe.

Mr. Kimmel enumerated the different kinds of foreign wheat of fine quality, and the ports at which they could be obtained with the greatest care and of the best quality. For a factor to travel to all these places would involve too much expense; and yet the different kinds of wheat could not be obtained at any other place. He therefore suggested that efforts be made to obtain these different kinds through the American Consuls residing in the countries in which the several kinds grow. In the course of his remarks he described an attempt he had made to domesticate a kind from a part of Europe ten degrees further north than the place in America where it was planted. The result was that in the course of a few years it had the same appearance as native wheat. Mr. Browne thought wheat should be brought from a warmer climate than that of the place where it was planted.

After some further discussion on this point by Mr. Kimmel, the whole subject was referred to the Executive Committee, and Mr. Browne was requested to reduce to writing the plan he had suggested for the use of the committee. The same request was made of Mr. Kimmel.

Prof. Jos. Henry laid upon the Secretary's table a very large crystal of rock salt, which had been sent to him from Salt Lake City. Its chief value was the power of transmitting all kinds of light like a prism. The specimen was received, and the Professor requested to reduce his remarks on the subject to writing, and hand them to the Secretary for publication.

The President then read a letter from Salt Lake City upon the capabilities of the surrounding soil, which letter was also ordered to be printed.

Reaper Case.—In the great reaper trial of McCormick against Manny, in the U. S. Circuit Court at Washington, Judge McLean has delivered the opinion of the Court in favor of Manny, and refused the injunction sought by McCormick for infringement of his patent.

NEW-HAMPSHIRE AGRICULTURAL SOCIETY—A GOOD MOVEMENT.

The State Society of New-Hampshire has commenced a capital plan of asking important questions of a selected correspondent in every town. In this, though they but follow the usage of the Patent-Office, they modify the inquiry to suit the latitude. The following is a list of the interrogatories:

I.

1. Are farmers in your town improving their farms, and their own social condition?
2. If so, in what respects, and by what agencies?
3. If not, what prevents?

II.

1. What amount of woodland is there in the town?
2. In what ratio is it diminishing?

III.

1. How much swamp land, in town, has been reclaimed within five years?
2. At what cost per acre?

IV.

1. What is the condition of pasture land?
2. What measures are adopted for the improvement of such land?

V.

1. What price, per month, is paid for farm labor through the year?]
2. What during the summer and autumn—say for six months?
3. What per day, in haying and harvesting?
4. What per week, for domestic help?
5. Is it easy to obtain such help?
6. If not, why?
7. Is American or foreign help employed?
8. What proportion of each?

VI.

1. Is much attention given to the breeding of stock?
2. Who are some of the best stock-breeders in town?
3. Give such hints as may occur, in relation to the breeding of stock of all kinds?

VII.

1. What breeds of neat cattle are most common?
2. What are best for labor?
3. What for beef?
4. What for milk?
5. What breed combines the most desirable qualities, and is most profitable?
6. What crosses are most preferred?

VIII.

1. What breeds of sheep are kept?
2. What is their value per head?
3. How much wool do they yield annually?
4. What breed is most valuable?

IX.

1. What breeds of swine are most common?
2. Which is preferred, and why?
3. Can pork be raised with profit?

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

EDUCATION.

"FOREIGN commerce requires capital, and wealth gives power. Theorize as we will about the matter; it is so, and will be so. When wealth is controlled by a few, the few control the many. Wealth secures, or may secure, education; and knowledge is power. Nor is this all; "*for being educated they are naturally the associates of the members of the learned professions, and there is a common sympathy between them growing out of this state of things. Here is reason enough for the influence exerted in many communities by these classes.*"—*P., L. & A.* p. 322.

"The mission" of an agricultural paper is essentially to aid in educating the masses; not education as is too commonly comprehended in that term, for the mass deem being taught the elementaries, to be education. Could the writer believe "the mission" of an agricultural paper to be the mere increase of a crop, how to fatten a hog or a beef, to increase quantity or quality of wool—to make money; or comparisons between members of a family who should have a common hope, a common good at heart, he would at once cease the labors of a quarter of a century, break his pen, demolish his inkstand, and turn over this missionary work to Wall street and the Shylocks whose whole study in life is cent per cent.

The merchant who owns a large capital, educated in head, and heart, and hands, who had a pious and devoted mother to pour into his infant heart "love to God and love to man" is bound to wield an influence little short of a king, and thus would show forth that "commerce is king." But unfortunately for the cause of true human progress, acquisition of property is regarded as the beaux ideal; the economy, the close trading, and the shaving of the millionaire is the picture set before young men; the education, if any, the comprehensive mind, far-seeing eye of these men are taken into count; the thousands who fell by the wayside whilst struggling to mount up to the height of Crœsus are not seen, but those only who have amassed are pointed to, and the young disciple of Mammon is bid God-speed.

If mothers were thoroughly educated, if parents and guardians would point to youth the bright examples who have secured the prize, we would soon have better days. Mothers having the care of the infant heart when it can be molded to high and holy aspirations should be eminently fitted to their task; by a thorough drilling, even as thorough as if they were to fill the sphere that God has alloted to man, because they prepare the material for the work. Parents and guardians who manage youth would do their duty better to put an example before their young charges—our future men—whom by following they could not err. For instance, Mr. ———, who at his home is a kind father, husband, friend, neighbor, one who spends his evenings with his family or in study; one who is ready to aid the needy, has a heart open to the wants of our race, one who is faithful in the discharge of all duties whether to God, his country, or himself. Such an example may not all suit of his accumulating vast property, but it will be more certain.

If every business man would resolve, on setting out in life, to do his whole duty, we would have ninety-nine out of every hundred *well doing in the world*, instead of one to accumulate a Girard estate, and ninety-nine to fall by the wayside. The great point is, lay a foundation broad, strong and deep, by educating woman. Leave all the mere show and glitter to such of our race, whether those who have beards or not, who prefer such to the development of our race. With such a foundation, America may build a reputation that will be a lever to move the world. Labor as you will to educate man, and make of woman a mere machine to stitch silk and lace upon, a mere automaton to be wound up at the pleasure of a man, and to rattle away on wood, metal and ivory some times, and you can never place man in his proper position. The female sex educated for companions, associates, would so soften the harshness of man's nature that you would soon see more influence from education than for these hundred years past altogether. With respect, your fellow-citizen from the

SOUTHWARD.

THE SPIRIT OF SPECULATION—HOW TO CHECK IT.

THE more we look into the subject, the more enormous appears to us the wild and reckless spirit of speculation. It seems to pervade every department of trade. A recent exchange from the South asserts that speculators are controlling the prices of sugar in their first market. They buy up large quantities and withdraw most of it from the market, and then raise a hue and cry of scarcity, accomplishing their object throughout, as other gamblers do, by falsehood and fraud.

Another mode in which those men operate is set forth in the following paragraph, which occurs in a memorial of the sugar dealers of New-Orleans, under the date of Nov., 1855:

"Our market," say they, "is at all times liable to be influenced by combinations, got up in other cities as well as in New-Orleans. Mr. Champpnier has informed us, in his circular of the 16th inst., that in New-York, on the 3d inst., Refiners 'were scarcely in the market at all; some of them having lately sold refined sugars at the cost price of raw, and in same instances less.'

"Refiners do not make such sales without an object. Being made at that particular juncture, it is not unfair to suppose they were made for the purpose of influencing the market, to depress the price of raw sugar, of which they now have to purchase so largely. Had the crop been a large one they would no doubt have succeeded. But no system of misrepresentation can blind people to the diminution of the present crop. Speculators were prompt in taking all the sugars offered by those refiners, and prices went up again."

We are perfectly aware of the great difficulty of defending the public against such depredators. The enactment of special statutes to meet such necessities, is both hazardous and unpopular. But we are not quite sure that common law does not give us means of defense well worth attention. Different modes of operation have received appropriate names, while the end and aim may be the same. Thus:

Under the common law, *Forestalling the market* is an indictable offense. It consists "in buying or in contracting for any merchandise or victual coming in the way to market; or dissuading persons from bringing their goods or provisions there; or persuading them to enhance the price, when there; any of which practices make the market dearer to the fair trader."

Another form of a similar offence is *Regrating*, which is defined to be "the buying of corn or other dead victual, in any market, and selling again in the same market, or within four miles of the place." The gist of this offense consists in an intent to speculate on the price of food. Nor does it require any actual corrupt motive beyond this increase of price, by the mere purchase for making money and re-selling in the same market; indeed the reason assigned by Blackstone, why such purchase and re-sale is unlawful is because "every successive seller must have a successive profit."

But a third form of carrying on trade unlawfully describes more exactly that very form which is so extensively practised in this country at the present time. It is called *Engrossing*. This is described to be "the getting into one's possession or buying up large quantities of corn, or other dead victual with intent to sell them again." "This," says Blackstone, "must of course be injurious to the public, by putting it in the power of one or two rich men to raise the price of provisions at their own discretion."

This offense differs from monoplies, a fourth form of offense, inasmuch as monopolies extend to all branches of trade.

The penalty for violating the laws in these several modes, was by discretionary fine and imprisonment as a misdemeanor.

Nor is it marvellous that our ancestors should enact such laws. There is work enough for all without being obliged to filch from the pockets of the poor, as does every such speculator. Such middle men as enter into this business in the manner described, ought to be regarded as dishonest, fradulent, disreputable, like any other gamblers. They are gamblers. They do nothing to increase the value of the merchandise. They merely get possession, and oblige others, who might buy as well as they, and without their help, to pay them an exorbitant commission for doing what benefits no one. Why can not our butchers buy of the drovers without the interference of middle men? Why cannot our grocers buy flour without supporting expensive establishments for the benefit of those who buy only to make a great profit by selling to the grocer? Why is a class of men tolerated who make a great hue and cry through the country of "high prices and short supplies," merely to bring in a surplus and buy it up at a low rate, because there is a more liberal supply, and then keep out of the market those same supplies, except as they can sell them at the same excessive prices, while the poor go hungry?

We know not the suffering that results from this single operation, and the community are fleeced out of thousands and tens of thousands of dollars to feed luxuriously these lazy middle men, who will not earn an honest living. *Nine-tenths* of all the middle men of this city might be dispensed with, and the community suffer nothing, but save much.

POMEROY, OHIO.—Within the past year, over 10,000,000 bushels of coal, 1,000,000 bushels of salt, and manufactured iron to the value of $150,000, have been shipped from Pomeroy and towns adjacent, to points below. The value of these mineral products is over $1,000,000, to say nothing of the agricultural productions.—*Meigs Co. Telegraph.*

THE CITY OF ST. PAUL.

A CORRESPONDENT of the Chicago *Democrat* furnishes that paper an interesting account of this thriving city.

The city of St. Paul (not St. Paul's) is built on a series of tables or benches which run parallel with the river, the one rising above the other to a height of from forty to sixty feet, and extending probably two miles along the river, running back about the same distance. In early times the place went under the name of "Pig's Eye;" but a missionary came here and built a small church dedicated to St. Paul, and from that the city has been named. This "church," a little log house, is still standing, and was pointed out to me yesterday by Judge Tullis of this city. There it stands, a rude, rough log house, where first the red man of these regions heard preached the tidings of salvation. This is called the "nucleus" of St. Paul, and I observed that not a few chunks had been cut out of the logs by relic hunters who have visited this region.

The town plan of St. Paul was laid out in 1847, up to which time it could only claim to be a wilderness. In 1850 the population amounted to 1035, since which time it has rapidly increased, till now it numbers upwards of 7000. The business, however, transacted at St. Paul, is far greater in proportion than its population would justify. Situated as at present it virtually is, at the head of navigation, St. Paul is not only the Territorial capital, but the commercial center of Minnesota Territory. Everything for the back or upper country must of necessity pass through it, and that of itself gives it an advantage over any other city or town site in the Territory. True, there may and doubtless will be other large cities in Minnesota, but St. Paul has the lead at present, and there is no reason why it should not keep it.

There are several fair looking buildings in St. Paul, considering its age. The capitol is an imposing structure, built of brick manufactured here. There is also a well built hotel—the Winlow House—which has a commanding appearance. The majority of the houses, however, are built of wood.

There are three grist mills in operation, capable of turning out 1,500 bushels a day. There are also six or seven saw mills, all of which at present are running night and day.

The Forwarding and Commission business is very extensive, and likely to continue increasing. At present there are about a dozen houses devoted almost exclusively to it, who jointly do a yearly business amounting probably to half a million of dollars.

St. Paul has seven churches—First and Second Presbyterian, Methodist, Episcopal, Catholic, German, Methodist and Scandinavian—all of whom have stated pastors, with good congregations. The erections are not by any means extravagant or graceful in their appearance, but for a young city they are tolerably fair. The Catholics intend to commence a splendid Cathedral next year, one of their clergymen being at the present time in Europe collecting money for that purpose.

In educational matters, St. Paul is pretty fairly advanced. They have a charter for a college, to be called "The University of St. Paul," the preparatory department of which will commence soon. Besides this, there is the Baldwin school, founded by a gentleman of that name in Philadelphia. It was incorporated and commenced operations early in June, 1853. The

Female Department alone has 100 pupils. There are also three district schools, all of which I believe are well patronized.

Real estate is not so high proportionately as it is farther up the river. Property in the best business street may be had at from $90 to $125 per foot, and good residence lots may be had at from $500 to $1000, and before the boundary of the city limits is approached, they may be got at $150 or thereabouts. Within the last month more than $200,000 worth of property has changed hands. There are some nice little bargains made here occasionally by real estate operators.

St. Paul, as your readers are probably aware, is virtually at the head of navigation on the Mississippi. When the river is properly cleared of rocks above St. Paul, vessels will be able in high water to reach St. Anthony; but at all times navigation will be such a matter of uncertainty, that the latter place must, in my opinion, content itself to be the second or third city in the Territory. Whenever railroads get started here, then some other place may possibly rise up and complete with St. Paul; but even that is not likely.

The people of St. Paul are a reading people, if we were to judge from the number of newspapers published here. There are in this city four daily and five weekly papers; one having just been started in the German language.

WHAT RAILROADS ARE DOING FOR THE WEST.—The official returns of the new census of Illinois have just been received. The entire population is over 1,300,000, which is a gain of about 50 per cent. upon the census of 1850. By comparing the increase through the several decades and semi-decades since the census has been taken, it will be seen that the gain has been much larger during the last five years than any former period:

From 1810 to 1820 the increase was - - - -	42,923
" 1820 to 1830 " " - - - -	102.234
" 1830 to 1835 " " - - - -	114,982
" 1835 to 1840 " " - - - -	204,756
" 1840 to 1845 " " - - - -	185,942
" 1845 to 1850 " " - - - -	189,345
" 1850 to 1855 " " - - - -	448,781

The railroad system has been developed in Illinois within the last five years, and one of the fruits, we see, has been to double the population. Add to this the improved society, the multiplied educational and moral influences, such as the newspapers, cheap books, etc., which follow population, and take advantage of all cheap methods of communication, and then one may begin to appreciate the advantages of the modern railway system as an engine of civilization.—*Exchange.*

USE OF RAILROADS.—The Beloit *Journal* says that during the past week, red and white winter wheat sold in that village for $1 87 and $1 88. It adds: "We have conversed with men who say in Beloit in years gone by, *a bushel of wheat exchanged for a pound of saleratus!* Where now are the croakers who say that 'railroads do not benefit the farmer?'"

INDUSTRIAL STATISTICS.

Essex County, Massachusetts.—This is the most densely populated county in the State, except Suffolk, and this results from the variety of their pursuits. The Newburyport *Herald* publishes the following statements in reference to certain forms of industry.

The Boot and Shoe Business.—The following table shows the state of this interest in the several towns of this county:

Towns.	No. of males employed.	No. of females employed.	No. of pairs manufactured.	Value of manufactures.
Amesbury,	54	40	52,820	29,136
Andover,	76	34	80,736	55,787
Beverly,	511	300	288,600	171,000
Boxford,	50	47	61,550	52,550
Bradford,	12	11	20,075	1,000
Danvers,	1300	1500	1,330,000	1,000,000
Essex,	15	7	4,850	7,470
Georgetown,	356	239	339,540	336,320
Gloucester,	89	110	24,100	21,375
Groveland,	261	193	161,414	152,039
Hamilton,	93	56	23,000	8,200
Haverhill,	4087	2257	4,332,015	2,782,930
Ipswich,	78	60	42,000	69,000
Lawrence,	31	30	24,183	24,925
Lynn,	4545	11,021	9,275,593	4,165,529
Lynnfield,	41	39	33,000	31,200
Manchester,	1	2	2,500	1,200
Marblehead,	1080	1485	2,835,724	1,020,378
Methuen,	280	210	304,500	300,500
Middleton,	165	140	180,000	117,000
Nahant,				
Newbury,				
Newburyport,	361	268	428,400	398,600
N. Andover,	60	25	50,000	36,000
Rockport,	17		14,900	8,000
Rowley,	209	114	164,800	195,600
Salem,	128	148	139,250	96,000
Salisbury,	33	48	18,164	15,019
Saugus,	152	120	134,000	96,000
S. Danvers,	562	481	747,600	597,259
Swampscott,	76	141	20,600	49,300
Topsfield,	105	121	98,350	90,260
Wenham,	46	20	29,200	20,000
W. Newbury,	231	138	275,200	231,138
	15,105	19,395	21,540,684	$12,180,810

It will be seen from the above that the census returns more than 35,000 workers upon boots and shoes, manufacturing over 21,000,000 pairs, at a value exceeding $12,000 annually; and as large as that seems, it is not up to the facts. The census was taken in summer, when many of the shoemakers were fishing or farming who were enumerated as fishermen and farmers. The city of Newburyport would have given a hundred more in January than June; and Marblehead would have made a greater difference, and so would Beverly, of the fishing towns, to say nothing of the agricultural.

Two of the towns, it will be seen, have not been enumerated; one of them is Newbury, where probably there are two hundred males and females because they did not manufacture for themselves in the town. The valuation, too, we believe is much below the mark; everybody knows that valuation has to do with taxation, and they never state above but often below the actual worth.

CARRIAGE MANUFACTURING IN WEST AMESBURY.—There are twenty establishments in West Amesbury for the manufacturing of carriages, that have an invested capital of a quarter of a million dollars and give constant employment to 280 hands. That business has within a few years built up one of the most thrifty villages there to be found in the country; and the turning out of $300,000 value in chaises, carriages, etc., places it first in that manufacture.

Nearly all the tanning and currying is done in Salem and Danvers, the comb-making in West Newbury, the shipbuilding in Newburyport, the construction of small vessels at Essex, the cod-fishery in Beverly and Marblehead, the African trade in Salem, the freighting ships in Newburyport, and mackerel catching from Gloucester. People of the same business, modes of life and habits of thought, congregate together.

SHIPBUILDING.—Newburyport employs a large number of men in this form of trade. The statistics given are as follows:

Men employed, 270; daily wages average $1 50; about 35 men are employed in the joiner work, who receive $1 75 per day; 33 caulkers get $1 50 per day; 33 smiths average $1 50; ship's painters, about 20 hands, get $1 33 per day.

DIFFERENT KINDS OF FOWLS.

THE following statements are from extensive raisers of poultry, and are worthy of the consideration of all interested in the subject:

The *Dorking* fowl, which some still attempt to bring forward as the best, has been found to be tender, and unfit for a general barn-yard fowl. The *Polands*, and *Black Spanish* are the same—good layers, but unfit for the table, when compared with some other breeds, and their young so tender as to be very troublesome to raise them. The *Creoles* or *Bolton Greys* are excellent layers; but owing to their small size can never be anything but a *fancy* fowl. "*Cochin China*" fowls are a humbug. There is no such breed, and those that were said to have been imported from Cochin China came from the city of Shanghai in China. They are a *Shanghai* fowl, with smooth legs. There are but few Shanghai fowls now existing in this country in a pure state; but those that have short legs, plump bodies, short tails, and weigh, hens, 8 lbs., and cocks 10 lbs., are a valuable fowl. Cinnamon colored hens, and red cocks are marks of genuine stock. There are some beautiful black Shanghais that are quite as valuable as those of a cinnamon color. The white Shanghais are a good fowl, but not as hardy as those of other colors. The *Chittagong* fowl is a great, unsightly bird; cocks of a mixed hue of black and white, hens grey, mottled, brown, etc. Indeed, it is difficult to find two fowls of the same color of this breed, and they have been crossed so extensively with the Brahma and other fowls, that the original stock is mostly merged in some other breed. This is the reason why so many ill-shaped, long-legged "*Brahma*" fowls are in the market, which in fact are generally one-half, or three-fourths Chittagongs. The pure *Brahma* fowl, we believe, has no superior in the world, in all that constitutes a hardy fowl, one of great size, yet not too large, with short legs, compact bodies, and great prolificness in eggs. This is our experience with them, after a trial of four years."—*Rural American.*

A correspondent of the Hartford (Conn.) *Courant* says:

"For several years past I have kept a few hens, and have, during the time, tried several varieties. I now have two varieties which are certainly superior to any other kind of which I have any personal knowledge; one is the Brahma Pootra—a large, handsome fowl—most excellent layers and easy to raise; and the other is a white China fowl, or white Shanghai, as some call them. This variety I value very highly, and do not believe, all things considered, that they can be surpassed, in everything that goes to make a handsome and profitable hen, by any other variety in America. I have had this kind in my possession for fourteen months, and they have laid every month during the time except when setting; and after hatching they would commence laying by the time the chickens were two or three weeks old. The flesh of these fowls is excellent, being much superior to the common Shanghais; their bodies are full and plump as a partridge.

"I have kept during the year ending Oct. 15th, 1855, from twelve to sixteen hens, of different varieties, from which I have had over 1700 eggs.

"I paid out during the year for food, $45. The eggs come to $43, leaving me for profit between 80 and 90 chickens, valued at from 25 to 75 cents each, which shows that there is some profit to be derived from the business, although kept shut up as mine have been.

"FEED.—Their food should be corn, or corn and oats, kept where they can have access to it all times; also fresh water daily. When cooped up they should have pulverized oyster shells and gravel, where they can obtain them when they require, and occasionally fresh meat; with the meat, bones and other scrapings from the table; and two or three times a week they should have raw vegetables, chopped fine, such as cabbage, onions, turnips, carrots, etc.; and in summer a daily supply of grass. It will be found beneficial to feed once a day with meal, wet up with warm water, especially in the winter season. It is useless to expect a large supply of eggs unless you feed well.

"VERMIN.—The greatest nuisance to contend with, and which is the cause of more failures in the management of poultry than all other causes combined, are the vermin or hen lice that infest their roosts in warm weather. It is useless to expect profit or pleasure while these pests are allowed to increase. I have succeeded in keeping the roosts comparatively clear of them by once or twice a week smearing the roosts with a mixture of poor oil and spirits of turpentine. The nests should be cleared out quite often and kept clean, and a box of ashes or dry sand kept where the hens can roll in it. Use these means, and we can warrant comparative immunity from the vermin.

THE ROUP is often very fatal to poultry, more particularly where they are kept in large numbers, often 25 per cent. of the flock dying of this disease. It is very similar to malignant erysipelas, with congestion of the lungs in the human subject, the wind-pipe closing up, causing suffocation. The only effectual remedy we know of is, on the first appearance of the disease, to close all the doors and windows of the poultry house at night, when the fowls are on the roost, then burn within the building a few corn cobs, the smoke from which will fill the building, causing a constant snuffing or sneezfish was bred, and what was its appearance and character previous to its being known and distinguished as the Salmon, on its first return up the streams from the sea, under its piscatorial cognomen of (Scotticē) "grilse," (Hibernicē) "gillaroo," and (Anglicē) "a first year run fish." There was a small fish which swarmed in the salmon rivers of North Britain—the "Tweed," the "Tay," etc.,—called the "Par." It weighed from two or three, to six or seven ounces, and was a beautiful little species, resembling a trout, but having a single row of golden-red spots, evenly studded along each silvery side. As it was lively in the stream, and a delicious morsel on the table, it was angled for by man and boy at all points, and taken in vast numbers. The writer, when an urchin, placed at the grammar-school of an ancient town, situated on the banks of the beautiful Tweed, has caught in that river from ten to twelve dozen of Par with the fly-rod, day after day; and his twenty-nine school confreres were no less active in plying the murderous warfare. Nor he, nor they, nor any one divined that this little fish was assuredly the young salmon, and that every one which should have escaped to the sea would, in all likelihood, have returned again up stream, in a few months, a noble "grilse," of from four to nine lbs. of weight. It is remarkable how undeviatingly these fish return to those streams in which they have been spawned, and the manner in which they will stem currents and ascend falls of water to do so is extraordinary.

The forest or chase, lake or *mere* laws, of the olden times of England and Europe, were terribly and unjustly strained enactments against the rights of the many for the enjoyment of the few. Even the British game-laws of the present time retain objectional features. But the absence of *all* restrictive laws—no protection of those *ferae naturae* which are termed "game"—is a flagrant oversight and error, causing hurtful deprivation and loss to any and every community. In how many districts and regions, already, of this country, has not that magnificent quarry—the deer—disappeared from hill and forest, as has the winged and other smaller game from field and woodland, while trout of any worthy size are scant, or none, in so many streams?

As regards the Par, the poaching havoc, once wont with it, has been largely stayed. Random guesses and surmises of its being the fry of the salmon had long been rife enough, but unattended by assured conviction or knowledge of the fact, until the Duke of Athol caused some experiments to be made in the Tay, which resulted in conclusive evidence. After being taken with the net, numbers of Par were marked, and then again freed in the river; and in a few months afterwards many of the marked fish were caught, on their return up stream from the sea, grown to be "grilses," or young salmon. This experiment was tried on such a scale, and this for several seasons, as to present proofs beyond doubt or cavil by even the most skeptical. Following upon this was, first, the protection of the young fry from former unlimited destruction; and, next, the discovery and resort to artificial incubation, as a means to preserve the spawn itself from its numerous sources of waste and accident. Out of all this has gradually been developed the now eminently practical and successful artificial cultivation of fish, so to call it.

The description of one experiment, made in the Tay, at Perth, in Scotland, will best elucidate what has and can be accomplished in this way. Three hundred boxes were laid down, in twenty-five parallel rows, each box partly filled with clean gravel and pebbles. On the 23d Dec., 1853, 300,000 ova were deposited in these boxes. In June, 1854, the fry were admitted into the prepared pond, their average size being about one and a quarter inch in length. From their admission they were fed, daily, with boiled liver, rubbed small by the hand. By the spring of 1855 they had increased in size to three or four inches. In May they had begun to put on the migratory dress, or appearance, and on the 19th of that month the sluice communicating with the river was opened, and every facility given the piscatory brood to depart. None, however, manifested any disposition to issue forth until the 24th, when the larger or more mature of the smelts, after holding themselves detached from the others for several days, went off in a body. A series of similar emigrations took place, until full half the fry had left the pond and descended the sluice into the Tay. It had long been a subject of controversy whether the fry of the salmon assumed the migratory dress in the second or third year of their existence, and this favorable opportunity to decide the question was not overlooked.

In order to test the matter in the most effective manner, it was determined to mark a portion of the smelts in such a way as that they might easily be distinguished when returning as grilse. A temporary tank was constructed at the junction of the sluice with the Tay, and as the shoals successively left the pond, about one in every hundred was marked by the abscission of the second dorsal fin. A greater number were marked on the 29th of May than on any other day, in all about 1200 or 1300. The result proved equally satisfactory and curious. Within two months of their liberation twenty-two of the young fish so marked were recaptured, on their returning migration up the river, and proved the fact of their becoming grilse in the second year, as well as their rapid growth during their short sojourn in salt water. Those first taken weighed five, to five and a half pounds, increasing progressively to seven or eight pounds; whilst one taken on the 31st of July weighed nine and a half pounds. The wound caused by the process of marking was found to be covered by the skin, and in some there was a coating of scales over the part. This experiment demonstrates the practicability of thus rearing salmon, of marketable value, within twenty months from the deposition of the ova or spawn.

An incidental description of another mode of rearing fish—sea fish—may not, perhaps, be an unacceptable anecdote. An old brother officer of the writer, Colonel McDouall, late in command of the second regiment of Life Guards, is possessed of an estate called "Logan," situated in the Rhinns of Galloway, Wigtonshire, Scotland. It is about half way between Portpatrick and the mull of Galloway, and extends about a mile and a half down to that point of the Atlantic sea-board. Here Colonel McDouall has formed a fish-pond, which is perhaps unique as an adjunct to a gentleman's residence, and some account of it may interest piscatorial readers, and lovers of natural history generally.

This pond was originally a small, rocky basin of the coast, with which the sea communicated by means of a natural tunnel; but as the bottom was very little below the medium sea level, it was nearly dry at low water. It occurred to Colonel McDouall that, by increasing the size and depth of this basin, he might, at all times and seasons of the year, have a constant supply of sea-fish; and he blasted and quarried the rocks, both at the bottom and sides, until he had formed a circular excavation of about fifty feet in diameter, and of depth to give about eight feet of water at low tides, so that fish in the pond should always have an ample allowance of their native element. At flood, the water rises six feet in the pond, or to about fourteen feet in depth, in all, affording a fresh supply with every tide. There is a high wall, built on the upper edge of the rock, around the pond, to prevent poaching in this unusual "game preserve;" and a grating is fixed at the entrance from the tunnel, so as to bar the escape of the fish. Beneath high water mark the sea-weed clings to the rocks, giving them an aspect as picturesque as natural. A cottage, in which the female keeper and her son reside, adjoins the pond.

When the writer first visited this ocean-pond, the keeper unlocked a door, and he was advancing forward, when the appearance of a large eagle—the Osprey, or sea eagle—startled him, for its glaring eyes and outstretched pinions seemed actually to menace the visitant. But the startled arrest of step is only an involuntary tribute to the skill of the artist who has stuffed this air-cleaving fisher of the deep. The door opens on a small landing-place, at the top of a flight of steps, which lead to the water's edge, where there is a platform of rock, about two inches above the level of the water; and, below the ledge of which there is another ledge, some twelve inches or so under water. No sooner is any one's advance descried on the top of the stairs, than a general commotion ensues among the fish, and they rush towards the platform's edge, pushing and jostling in their eagerness to get to the place where they are usually fed, just as barn-door fowls do at the sight of the person who feeds them. A quantity of muscles, scalded for the purpose of getting them more easily from the shell, had been provided to feed the fish. On this kind of food the Cod, and other varieties kept in the pond, *thrive amazingly*; and after being a few weeks thus "stall-fed," so to term it, *they greatly* excel in flavor and juiciness their untamed brethren of the open sea. A muscle being held between the fingers, about two inches below the surface of the water, a cod of about ten pounds weight took it, having won the race by about a head from three or four more of its mates of similar dimensions, all of which rushed for the prize at the same time. It required some nerve to prevent oneself from jerking back the hand at the moment the cod, with widely-extended jaws, took the bait. Several attempts to get hold of one of the larger fish failed; but a capture of one of four or five pounds was made, which, after being raised out of the water, and leisurely inspected, was returned to his native element, at which he seemed not a little pleased. It was, again and again, unsuccessfully tried to get hold of one large fellow of twelve or thirteen pounds; but from his size and strength, he always got off; and though unable to throw *dust* in one's eyes, he revenged himself with such a whisk of his tail as sent the *salt water* flying. After taking a short run, he always returned to the ledge, nothing daunted by the several attempts to seize him. The keeper took one of the largest, about ten pounds weight, in her lap, and stroked and petted it, saying, "poor fellow, poor fellow," just as if it had been a child; and she opened its mouth and put in a muscle, which it swallowed with apparent *gusto*—at least a wriggle of the tail might be so interpreted—and she then put her prisoner back again. Several gradations of tameness was observable among the fish; some were quite tame, and came close up to the ledge; while another class kept parading from right to left, keeping about two or three yards off, but readily partaking of some food thrown to them; and a third class kept aloof altogether. Others kept secluded from sight, in the nooks and corners at the bottom of the pond, and these were perhaps the "Johnny Newcombes" of the place.

It is a curious physiological fact—fishiological, if it better please—that fish which remain long in this pond always become blind; and this was ascribed to insufficient shelter from the heat and glare of the sun, owing to the shallowness of the water, when compared to the depths of their ocean haunts. In this state they are fed by hand, being unable to compete for feed with those whose sight is unimpaired. One large blind fellow called "Jack" was a great pet, and upon the keeper calling his name, he appeared to both hear and understand, for he came forward slowly, and when she held a muscle to his mouth, swallowed it.

At the time spoken of there were only three kinds of fish in the pond, viz., cod, flounder, and another small species; but salmon and other kinds are frequently preserved. The manner in which the stock is kept up is this: The son of the keeper goes out to sea in a boat having a tub, or well, and when he catches any fish that he thinks will do, he preserves them in the well, from whence he transfers them to the pond; where in due time—from a month to six weeks—they become tame. A curious scene occurred on one occasion when a mackerel was put in; there was a general chase after the unfortunate stranger, which only saved itself from being devoured by the larger and more ferocious of the denizens of the pond by running itself on a ledge of the rock. JOHN C. RALSTON.

INSECTS INJURIOUS TO VEGETATION.

LEPIDOPTERA.—We proceed to describe several individual species of the Papilio, (Butterfly,) of which the characteristics were given in our last number.

Papilio asterias, (of Cramer.) These insects are sometimes called Parsley Worms because they are fond of that plant, being often found on it, and also on the carrot, parsnip, celery, etc., in our gardens, and on those of the hemlock tribe of a wild growth. They appear in the Eastern States in the month of June. When first hatched they are only one-tenth of an inch in length, and are black, except a white band across their middle and a second on the tail. Their backs are covered with small projecting points. But at every successive moulting they change their appearance. The points, bands, and spots, (from which the points spring,) disappear, the skin becomes smooth, green, pale on the sides, and whitish beneath. They also have a pair of horns, (scent organs,) soft, orange colored, and divided from near its origin, like the letter Y. About the 20th of July they come to their full size—one and a half inches long, and are covered with alternate bands of black and yellow spots.

When they are full grown, they spin a little web, which they attach to the surface on which they rest, and entangle the hooks of their hindmost feet in it; and then, fastening themselves still further by a loop, into which they pass their heads, within twenty-four hours the caterpillar becomes a chrysalis, of a pale green or ash-grey color, with two short ear-like projections above the head, and slight prominence on its back. Remaining in this state from nine to fifteen days—(cold and wet weather prolonging the term,) the skin of the chrysalis bursts open, and a butterfly issues from it, of a black color, with a double row of yellow dots on the back. A band of yellow spots extends across the wings, and yellow spots also occur on its hind margin. The hind-wings are tailed. Seven blue spots occur behind the band across their wings, and near the hinder angle an eye-like spot of a yellow color. The female has fewer yellow spots than the male. The wings of these butterflies expand from three to four inches. In the month of July they are seen in great numbers in flower gardens, especially on the Phlox, (sweet scented) and lay their eggs in July and August on this and other plants, placing them singly on the leaves and stems. They are soon hatched, and the caterpillars come to full size in September or early in October, suspend themselves, as before described—remaining so during the winter, and are transformed in May or June of the following year.

The most effectual mode of destroying these caterpillars is by gathering and crushing them.

Vanessa antiopa, (Linnæus) This butterfly has wings of a purplish brown above, with a broad buff-yellow margin, and a row of pale blue spots near their inner edge. It is torpid during the winter, and comes out very early in the spring, confining itself to warm and sheltered spots. The caterpillars of this species are found on the poplar, willow, elm, and other early-budding trees. They are black and rough, with small white dots and a row of red dots on the top of the back. On each segment except the first are six or seven black, stiff and branching spines. They are about one and three-quarter inches long. They have been erroneously supposed to be venomous. They are very numerous.

The chrysalis is of a dark brown color, with *large, tawny spots* on the back. The chrysalis becomes a butterfly after ten or eleven days. *In August* a second brood is produced.

Vanessa interrogationis, (Fabricius,) Semicolon Butterfly. This first appears in May at the North, with second and third broods in August and September. The name is suggested by a fancied resemblance of a spot of pale gold color, on the middle of the underside of the hind-wings, to the mark which designates a question, but it more nearly resembles a semicolon. The upper side of the wings is a tawny orange, with brown spots on the hinder part, and black spots in the middle. The hind-wings of the male, except their base, are generally black above, and rusty red, or brown, beneath; the edges and the tails are glossed with reddish white.

The caterpillar is brown, variegated with pale yellow, or *vice versa*, with a yellowish line on each side of the body. Head, a rust red, with two black, branched spines. The spines of the body are pale yellow or brown, and tipped with black. It expands two and a half inches or more.

The chrysalis is ashen brown, head deeply notched, with two conical ears, a nose-like prominence on the thorax, and eight silvery spots on the back. The chrysalis period lasts from eleven to fourteen days.

These chrysalis have an enemy within them in the form of little maggots, which become four-winged flies, which make their escape by piercing holes through the sides of the chrysalis. They lay their eggs in the body of the caterpillar. Great numbers of them are destroyed in this manner.

Vanessa comma, Comma Butterfly. This insect is so named by Dr. Harris, who believed that the American butterfly differs materially from the European, with which it has been confounded. The hinder wings of this butterfly are not so deeply indented as those of the European after whom it has been named. The caterpillar lives upon the hop, and resembles the preceding. The chrysalis is a brownish gray, variegated with pale brown and furnished with golden spots.

The butterfly first appears in May, with successive broods in the summer and fall. It expands from two to two and a half inches.

PRODUCTS OF THE DAIRY IN NEW-YORK.

Our attention has been called to the omissions of the last census, in respect to the products of the dairy in this State, and to erroneous inferences that might be drawn from actual facts. It appears that in the State census of 1845 about a million cows were returned, and that the product of one-third was converted into cheese, the whole amount of which was 37,000,000 lbs., or about 110 lbs. to each cow. The other two-thirds were used for the production of butter, the amount of which was 80,000,000 lbs., or about 116 lbs. to each cow.

The number of cows returned in the census of 1850 was less than the number given in the State census by 60,000.

Assuming these returns as correct, the inference would be that the dairy products of this State were falling off, and the interest becoming less important. But look again, and discover that the product of each cow is much greater by the latter than by the former census, that of 1850 increases the amount of butter 264,361 lbs., and of cheese 12,991,437 lbs. Hence the legitimate inference from these figures would be that the quality of the cows was improving, and the interest made more valuable, with less cost of keeping. The value of this increase of products, with a diminished number of cows, was, at the market prices, $1,202,580 27.

But the figures of the census are not correct. It is true that dairymen have greatly increased the value of their cows. In Herkimer county the average of cheese per cow is said to have been 226 lbs., and of butter 350 lbs. per cow; and one dairy had given an average for three years of 680 lbs. per cow.

We have repeatedly stated that the most abundant milkers would not make the most butter, nor the best butter cows necessarily produce the greatest amount of cheese. These are points too much overlooked, but yet beginning to receive more general attention. From the Report of the State Society, from which these facts are gathered, we learn that in Oneida county, some years since, a bull of the Holderness breed was introduced, whose calves generally proved to be extraordinary milkers. One of these, giving from 25 to 32 quarts a day, was kept with a small cow of the Mohawk breed, giving only 12 to 14 quarts. The milk of both was mixed together, and churned with very unsatisfactory results. The milk of the two was then kept separate. The milk of the Mohawk produced the best quality of butter, nearly equal in quantity to that of the mixed milk of both cows, while it was impossible to make good butter from the Holderness. This cow was then placed among those used for the cheese dairy, and proved valuable. Such results would be brought out, beyond controversy, if experiments like that here described were made by our farmers. No two cows, perhaps, produce milk exactly alike, though among many of them the difference may be unimportant. Who will give us further tests of this description?

Artistic Coloring.—With what colors would you paint a storm at sea? The wind *blew* and the waves *rose*. How should a secret be painted? In violet. How would you paint an absent-minded literary friend? In a brown study. Of what shade of white are snow-flakes? Flake-white. How would you paint the melancholy natives of Berlin? In Prussian blue.

SOILS—WHAT, AND HOW PREPARED FOR CROPS.

HIGH authorities teach us that soils consist of the disintegrated particles of rocks. There is little practical importance in discussing the accuracy of this opinion, but it may be well enough, in passing, to inquire whether it is quite certain, after all, that this is not one of those stereotyped errors that truly scientific men have handed down from generation to generation. It may be true; but we are pretty sure that no one has ever proved it so. On the other hand, strong presumptive evidence to the contrary is obvious on all hands.

The earth being designed for the growth of plants, why should it have been necessary that every particle of it should first exist as part of solid rocks? Besides, what changes of any known rock will produce several varieties, such as some of the clays? We can conceive, indeed, of the changes necessary to produce such results, but we can scarcely believe that our soils have all gone through such steps ere they assumed their present condition. Take, for instance, pure pipe clay. Pure silicious rock must first have been disintegrated and dissolved, contemporaneously with precisely the same process with some aluminous rock, from which everything but alumina has been separated by elective affinity or otherwise, and, being quite free, the two are brought at the right moment into contact with each other, and been at least semi-crystalized. No other process occurs to us so simple as this. No rock consisting of clay, so far as we know, has ever been met with. So of other soils. The theory may be true, but it does not command our ready belief, nor has it claim for unqualified respect. Why may not the elements have been disturbed during the process of crystalization, and the cohesion, being thus broken, the cooling or hardening process have resulted in a loose granular substance, essentially as found at the present day? Has every particle of earth been through a grinding and fining process, so vigorous, so protracted as to reduce it to the exceeding minuteness which characterizes several kinds of soil? Besides, the immense amount of animal matter which has from century to century become a part of the superficial soil, by its numberless combinations with the mineral matters with which it has come in contact, must have very materially affected a large portion of the world's surface. Hence, if the position is true, with this exception, which is usually expressed, the exception is almost extensive enough to form the rule.

The soils of a given region are not of necessity of the same character with the rocks which belong to it. In all alluvial regions, for example, the soil may have been brought from very distant places, and hence the rocks of that region are no criterion of the elements of the soil. Even in mountainous districts the soil may have been formed, to some extent, by such process, ere the surface was heaved up into these lofty eminences. We know not how else to explain the fact that such differences exist between the rocks and the soil, even in its natural state.

The rule, however, is otherwise. Generally soils and rocks each indicate something of the nature of the other.

Soils are fertile or barren, as they contain the elements existing in plants in a soluble state, or are destitute of one or more of them. These elements may abound in it, but if they are in an insoluble state the soil is still barren.

Soils of the same chemical constituents vary in respect to fertility as-cording to the fineness of their particles. This not only affects its solubility, but its capillary action. Next in importance to fineness of particle is a due degree of lightness or density. Repeated ploughing causes the particles to lie lightly and to favor evaporation. Hence, if too wet, the effect of such culture is favorable. If naturally dry, it may be either good or bad, according as the character of the sub-soil is porous or impervious to water. If the latter, both should be thoroughly opened or neither. We are not convinced that repeated ploughing has a very powerful influence in fining a soil. "Rocks" are not so easily acted upon. We incline rather to attribute the beneficial effects of frequent ploughing and the like to chemical agencies, facilities for increased energy being given by the mere change of its physical condition. We all know that some manures act in both these ways.

The mere absence of moisture may render fertile soils unproductive. Without moisture, solution, and of course germination, is impossible.

The carbonic acid of the atmosphere serves as a solvent to sundry elements that are not acted upon by water, and reduces them to a condition in which they may be dissolved by water. This is the explanation of some of the effects produced by certain mineral manures, and also by suffering lands to lie idle or fallow. The chemical agencies so inherent in the liquid and gaseous substances which abound in the earth and air, are so efficient that, whenever allowed to work without interruption, their effects are quite obvious.

Color, too, has an influence upon the fertility of soils—the darker shades absorbing a much greater amount of heat than the lighter. This has a double influence, the temperature having an intimate connection with the germination of seeds and the growth of plants, and also modifying the amount of moisture (another important agent) held in the soil. On the other hand, light colored soils retain the heat of the sun longer than the dark soils, as a bright tin coffee-pot retains the heat longer than when it is blackened by a coat of japan.

This fact is turned to a practical account by gardeners, in giving to the walls and fences at the foot of which they cultivate or on which they train tender plants, one or the other color, according to the specific effect they wish to produce. If they desire to concentrate the power of the sun to the greatest extent while it is above the horizon upon any such spot, they would paint everything white. If they would retain the heat of the sun to temper the chill of the night, these walls should be black.

These few suggestions may furnish a key to the general system of agriculture. To furnish elements that are wanting, and to render other elements, as yet useless, efficient, manures are applied. The elements that are wanting must be in the manure, or the manure must produce them by a chemical action on the soil. To regulate the amount of moisture, and to secure some other physical advantages, a good system of ploughing must be adopted. Nearly all the culture subsequent to sowing and planting is but the perfection or continuance of the same plan, accommodated to the change in the condition of the crops. The nature of the manures which should be applied, and the extent of culture that may be expedient, will vary with the crop and the conditions of the soil from which it is to be obtained.

A large share of the instruction contained in the books, is but the carrying out of these suggestions in detail, and with a variety of crops. Under such instruction no one would apply plaster to wet clay, for plaster does not contain the elements of which clay is deficient, nor is there anything in clay from which this substance can form them. But it is otherwise with sandy soils. The effect of plaster is favorable, because it furnishes useful elements, and also by its power of absorbing moisture and holding it within reach of the plant. Barn-yard manures contain the elements of plants more generally than any other fertilizer, and are therefore more universally efficient.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

CORN—AND ITS FODDER.

Messrs Editors:—In pursuance of a promise made to the late John S. Skinner, Esq., I made the following experiment on corn and its fodder with my best attention in the summer and autumn of 1852. Having mislaid the memorandum of the results, I have been hindered from presenting them at an earlier day.

Stalks and their fodder below the ear per acre, 1502 pounds; stalks and their fodder above the ear, 814 pounds; husks, 407 pounds; cobs, 658 pounds; corn, 47 bushels.

The variety of corn planted was of the medium size, generally produced in the Middle and Southern States. The weight was ascertained in the dry state. Results, however, would be as variant as the varieties planted, and the growth of the corn under the influence of different seasons. If the wishes of my old friend shall subserve any useful purpose, I shall feel myself amply compensated for the trouble of making the experiment.

Respectfully yours, D. W. Naill.

Sams Creek, Md., Jan. 18, 1856.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE SUGAR BEET.

Mr. Editor:—Some years since the sugar beet was highly recommended for its saccharine properties and its great productiveness, and its extensive cultivation in France for sugar. It occurred to me that it might be excellent to raise for stock. I was at no small pains and cost to get some seed direct from France, known to be raised there from the genuine sugar beet. I sowed a pound on a well-prepared field, which grew most luxuriantly, but was greatly disappointed on pulling them to find most of the tops had fallen off, and that full two-thirds of the solid part was *above ground*—some were knee-high! *This* part of course was tough, woody, and had little juice. Had I then known enough to have pulled them while growing, leaves and roots together, it would have furnished first-rate feed for my cows. As it was, the crop paid well, though minus the leaves. I have since produced a very different article, by selecting, at digging time, those having the longest root *below* and the least above ground, and now I get a heavy crop, nearly all tender and juicy. This induced me to attempt improvement in other crops. My next experiment was made with English turnips. I found imported seed, especially for the garden, early turnips and radishes, far preferable to our own. The growth was more vigorous, plants tender, sweet, and free from worms. My object was to transform those large tops, standing in a *basin*, to a different proportion. For this I selected and set out for seed those turnips having the smallest tops and roots, growing on convex instead of concave extremes. The third year I found, in pulling, one that in shape resembled two tea-saucers put together—having a top covering a space less than a cent, and a single root the size of a pipe-stem more than a foot long, which I preserved with extreme caution, and raised from it nearly an ounce of seed, which I sowed in my potato-field, then sadly affected by the rot. The tops mostly died, and the ground being in good order, the turnips grew admirably, and I pulled seventy-five bushels!—quite uniform in size, few of them less than the admirable specimen, and, to my inexpressible gratification, with only the *one small root and top*,—in shape and flavor all I could wish.

You may be assured I set out a good share for seed, besides giving some to my neighbors to eat and to set out. It is to be regretted that so few are convinced of the importance of taking pains to raise or to procure the seed of improved plants. I have since changed the early June beet from the flat turnip shape to that of the Sweed turnip, yielding now one-third more weight of root, and being improved in its keeping properties. And lately I have much improved the Orange and white Belgian carrots, by selecting for seed only the longest, and such as have long roots of uniform size, (instead of short and tapering roots.) I now get handsome and heavy crops.

LANCASTER, Ms., Jan. 26, 1856. Yours truly,

BENJAMIN WILLARD.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

ON THE GROWING OF WHEAT.

THE present high prices of flour give to the subject of wheat-growing peculiar importance. New-England farmers are beginning to inquire whether it is possible for them to produce their own wheat.

When the land was new, very little grain of any kind was imported. The consumption was comparatively small. But little was used for manufacturing purposes. The non-producing class was small, consequently the supply was fully equal to the demand.

But the condition of things is greatly changed. Manufacturing villages have sprung up as if by magic. The old cities have doubled, seven quadrupled, their population within a quarter of a century, and a host of new cities are following hard after them. The town has made rapid advances in wealth and population, while the country has remained almost stationary. While the producers remain about the same, the consumers have been rapidly multiplying. Consequently the demand now greatly exceeds the supply, and the disparity is every year becoming greater.

The manufacturing and commercial interests of New-England are fast getting ahead of her agriculture. No portion of the States has done more for improvement in agriculture than New-England; and no State in New-England more than Massachusetts. Yet Massachusetts does but little towards supplying the wants of her own citizens. The same is true of Connecticut and Rhode Island. The three northern States produce perhaps enough for their own consumption, or what is equivalent to it. Yet there are few families who do not depend upon the West or Canada for flour, and all the cities and large towns are indebted to Ohio or Maryland for corn.

Not only flour, but corn, rye, beef, pork and mutton, and butter and cheese, are now brought in great quantities from the West. Even in the Connecticut Valley, formerly regarded as the Egypt of New-England, where the sons of Jacob from the hill countries might always find grain, corn is now imported for consumption by the farmers themselves. New-Hampshire is emphatically a grazing State. Her granite hills furnish but few arable acres. Formerly she did much towards supplying Boston market with meats and butter and cheese. Now most of her stores are supplied, not only with western flour, but with Ohio pork and New-York butter and cheese.

There is certainly no cause of alarm in the fact that New-England is turning her attention to manufactures, nor that she procures the necessaries of life from her neighbors; provided she is able to pay for them. And if the farmers find it for their interest to buy their grain and devote their grounds to other crops, who is harmed thereby?

As a general rule, however, it is better that the farmer should produce what he needs for home consumption. I doubt not it would be better for the cotton planter to grow bread and meat enough for his own use, rather than devote all his grounds to cotton, and procure these necessaries from abroad. And for the New-England farmer it would be far better to produce as far as possible, the necessaries of life. He may obtain more money from tobacco, hops, or broom-corn, than from bread stuffs, but taking all things into the account, will he be better off?

For what he procures from abroad, he must pay not only the cost of producing, but a profit to the producer, and the expense of transportation, and contribute to the support of a whole troop of commission merchants. Nor is this all. The land is drained by this exchange process.

Tobacco and hops yield nothing to repay the soil; broom-corn but little. It should be a rule with the cultivator to supply the soil each year with a as much nutritive matter, or *pabulum*, as he in the form of crop, takes from it; or, if not every year, every circle of rotation in crop.

But to the question, can wheat be grown advantageously in New-England? I answer, yes. That there are obstacles cannot be denied. So of all crops. In virtue of the curse pronounced upon the earth, briars and thistles and weeds spring up in the path of the cultivator. By the sweat of his brow he is to procure his bread. There are difficulties in procuring the necessaries of life in all their forms and in all climates. The name of the enemies with which we have to contend is legion. In addition to those named to the first tiller of the soil, is the fickleness of the climate, want of adaptedness in the soil, and the myriads of insect tribes, which seem to constitute supernumerary curse, not known or dreamed of by those the cultivators of olden times.

In the best wheat-growing countries, difficulties are met with and overcome. So they may be here.

I know a farmer, living on the banks of the Connecticut, who has raised wheat successfully for more than twenty years in succession, with an average yield of twenty bushels per acre. He thinks there is no insurmountable difficulty in raising wheat; that with proper precautions it is as sure as any crop he raises, and pays as well.

What one man has done, others can do. I believe that every farmer in New-England who has sufficient tillage land, may produce his own wheat, and that it would be for his interest to do so.

In my experiments in wheat growing, I have succeded best, seeding after clover. Let the second crop, or after-math, be turned under, ploughing deep and laying the furrow flat, early in August. The first or second week in September, harrow thoroughly, reducing the surface to a fine tilth, and sow from one and a half to two bushels to the acre. Great care should be used in the selection of seed, to get the best variety and that which is entirely clean. The seed should be soaked in strong brine from twelve to twenty-four hours, and then it is well to roll it in gypsum. After sowing, the land should be harrowed again most thoroughly with a heavy drag, that the seed may be buried deep. Some insist that it should be sown in drills and covered with a plough. It may be well, but I have found no difficulty in covering with a harrow. Lime is indispensable to a healthy development of this plant. Therefore, if not found in the soil, it must be supplied. I think it well to apply a dressing of lime and ashes in about equal quantities, say ten bushels of the mixture to the acre. After another light harrowing, let the roller pass over it, and then leave it till spring.

As soon as the ground is sufficiently dry in spring, let it be again thoroughly harrowed. This spring harrowing I consider very beneficial to all winter grains. The surface of the ground becomes hardened by the rains and snows of autumn and winter to such a degree that the tender fibres of the roots with difficulty make their way in pursuit of nutriment.

No cultivator thinks of leaving his Indian corn without assistance. The ground is disturbed and made light about the plants a number of times during the season. The wheat plant is no less tender, and needs no less the fostering care of the cultivator.

There is no danger of injury by this process. Like the boy who had received a severe flagellation, the young plants seem to be "refreshed." Furthermore, many of the roots are divided, and thus the number is multiplied and more equally distributed.

Wheat may also be sown advantageously after corn, being careful to get it in early in October.

In the northern portion of New-England, farmers are now mostly in the practice of sowing wheat in the spring. The reason assigned is, that fall sown wheat is liable to winter-kill.

In November last I was in Wolfboro, N. H., which by the way is a beautiful village on the eastern shore of Lake Winnepiseogee, one of the most charmingly lovely sheets of water the eye of man ever rested upon, where I learned among other things, the following facts, which may interest your wheat-growing readers.

A. S. Avery, Esq., of Wolfboro, sowed a piece of ground with wheat on the 16th of June last. On the 16th of October he harvested it. Amount of seed per acre, one and a half bushels. Variety, Fife, (Russian.) Yield per acre, twenty-six bushel clean wheat, and about six bushels impure. The ground had been recently broken up from grass. Mr. Avery thinks this variety the best; has sown it four years; not affected by rust, mildew, smut blight, weavil, or any such thing. R. B. H.

POOR FARMERS.—HOW TO IMPROVE.

There are certain points in reference to which a farmer who is obliged to mourn over his poverty and his small crops ought to inquire, and inquire earnestly, for himself and for his family.

The first is, *is it an object to raise good crops?* This is the very first thing to be settled. Nor is it one which can be properly overlooked, even for a single season. The question is not, in fact, settled by one quarter of the farmers of this country. They know that good crops are good things; that large crops make heavy purses, after they have been gathered and sold; but they are equally conscious that it costs more money to cultivate land than to let it yield spontaneous crops. They know that much hard labor is required on many farms; and these and similar thoughts, like idle fancies, run through the brain, and lead to most indefinite and *unproductive* conclusions. These men are very far from being convinced that it is desirable *for them* to raise valuable crops. They would not hesitate, if the question submitted had reference to the harvesting of crops already grown. There is something so satisfactory, so perfectly delightful in standing on the borders of a field burdened with a rich harvest, waiting to be gathered in; there is so much pleasure in the consciousness of entire success in conducting the various processes that must be sought for with toil and patience for months, that even the seven sleepers would rouse themselves long enough to take possession of such a prize. But this is not the inquiry we have propounded.

We would ask such a farmer, addressing him individually, is the conviction clear in your own mind that it is important for you to raise large crops? There is more involved in this than appears on the surface.

Let us present the inquiry, not, as just intimated, while the golden crops are spread out at our feet, waiting only to be gathered by the husbandman, but as he sits around his family hearthstone, and the cold winds are heard without—or when, in the early spring, the coming seed-time reminds us of the conditions that must be fulfilled ere barns and granaries shall be filled with food for man and beast—in such circumstances do you wish, *earnestly*, for such harvests? Has anything more than vague dreams run through your brain in regard to this subject, without especial consideration, or earnest thought, or careful calculation? Have not the labor and the cost overshadowed the rich products? What is, in your case, the actual cause of your want of success? Give us, or rather give yourself, we would say to such persons, an honest confession, the decision of your own candid judgment. Are you persuaded even that you are now in a condition from which it is desirable that you should escape? That it now is, actually and truly, an object of great importance that you should become, in all respects, a successful farmer?

If we are not mistaken, there is no such clear, definite, fixed conviction in the minds of a large portion of our farming population as is required. They pass on in the current, at times discontended, sometimes anxious and perhaps somewhat envious, but seldom in a state of earnest and rational inquiry as to modes and means for essentially improving their own condition.

It is indispensable, in all such cases, to produce a deep and permanent conviction of the importance of the end to be gained. And how can this be done? *Can* these dry bones live?

The power to move these minds must come from within. No external agency is sufficient for this. But there is a process, not now suggested for the first time, but one which we have never drawn out at length, in which we have great confidence as a means of essentially improving the condition of the agricultural interest through the country. Let us illustrate by a story:

We were once a teacher in a select school, with some forty boys before us. Our predecessor, a most excellent man and most successful teacher, we looked up to him as we stood in his shadow, carefully described to us the weaknesses and faults of those whom he supposed would give us the most trouble. One of these we will call John. He had been an idle boy. He was lazy, indoors and out. He was thought stupid, and he certainly was a poor scholar, and "had worn out several pair of shoes," as the boys had it, in going to his teacher's study to learn the lessons he had previously neglected. We, of course, anticipated similar trials with him. But we took especial pains to "get the right side" of John. We treated him very kindly, and showed a disposition to help him whenever he met with any difficulty. He took hold at once and in earnest. He was in good classes, but the first day of our connection he came up with "perfect" in his lessons and his record of deportment. We were delighted. So was John. He went home happy. He had conquered his indolence. The victory was easier on the day following. The third and the fourth and fifth day did not find him careless. On Saturday he had secured the head of his class for the following week. He had triumphed indeed. The Saturday following was the same, and for weeks he did not miss in a lesson, nor get any marks for bad deportment. He had tasted the PLEASURE OF SUCCESS, and it was not to be thrown away for the vapidness and vexation of indolence.

In order to call forth the energies of a man, he must by some means be led to experience the difference between failure and success. Multitudes know the bitterness of the former, but they seem practically to assume that success, at least in this case, is impossible, or that it would not pay. They over-estimate the magnitude of obstacles and very much under-rate the benefits of success. To a considerable extent the obstacles that are conjured up are mere fictions, while the process and the result to which he comes, seem to him, at least, plausible.

A boy is shown a large sack of corn, and is directed to take that corn to a given place. He tugs at it a moment, and cannot move it, and therefore sits down and cries about it. He fails to do his task and gets punished. It never occurred to that boy that he might divide the quantity, carrying only a small part at a time, and by thus dividing the burden, accomplish the task. So our farmers, supposing that it would cost more by a hundred dollars a year to cultivate their small farm properly than they expend, and know that they cannot raise a quarter part of this, they suffer the whole thing to pass by. The hundred dollars cost seems indefinitely large, while the view of the benefits to be gained is very confused, and their value is considered so uncertain and indefinite that no real permanent desire is excited to obtain them.

Were we an agricultural missionary, going round among the unsuccessful of the craft, we would induce such to begin by trying improved processes in a single lot, and we would select one that bore but little, and was yet capable, without excessive labor or cost, of bearing much. Let the farmer see his plan successful; let him see that a different system of cultivation has actually paid its way; and, we believe, in nine cases out of ten, like our John, he would go on, and extend his improved plans till they covered his entire farm. There is nothing like actually tasting of the fruits of success, in any pursuit. Even the pain of broken bones or wounded limbs is stilled by the shout of victory, as the conqueror returns in triumph after a furious battle. So toil, constant, and severe, and protracted, is all forgotten while the rich harvests smile from stored garners, and the signs of coming winter call up no fears of want or suffering. We say therefore to such, *Try this small lot.* Make an experiment that will not cost too much, and learn how well it pays.

"But how shall we try? Our pockets are empty; our heaps of manure, *they are not* to be found; and we are already burdened with debt." Well, this is a hard case; but the snow is just going off, and though it is quite too late for the best preparation for the coming season, we can do something. Let us see.

There are certain fertilizers which are at the command of all, and which pay well for the labor they ordinarily demand. Among these are clay, sand, ashes, broken straw, tops of vegetables, perhaps sea-weed, black swamp mud, shells of some kind, bones, marl, charcoal dust, sawdust, soot from the chimney, rags, decayed vegetables, and, above all, the *contents of your privy*. For another season this list can be much extended, *including* dead animals, hair, bits of leather, hides, horns, tan, decayed *wood, leaves, weeds, etc.* Besides these, you can probably afford to purchase *a small quantity of lime*, plaster, guano or poudrette, as circumstances may determine. *Suppose you* thus expend only five dollars, being first assured that you purchase that which is best suited to the condition of your land and to the crop. The materials are at hand, and now let us proceed to apply them.

With the opening of the ground, cover your sandy soil with a coating of clay, or your clayey land with sand. A well-made compost of these materials would be much better, but this is all we can do for this season. Your ashes and lime you can use with the clay on your sandy soil, or use it by itself, if more desirable. This will depend on the quantity at your disposal. With your lime, or elsewhere, you can plough in your broken straw, or your sawdust, rags, marl and shells. Your vegetable matter, swamp mud and charcoal dust, (and sawdust if you please,) and soot, you can plough under, all mingled together. Or better still, if you will take your swamp mud, charcoal, sawdust, ashes, and lime, and mix them with a much larger quantity of sods, and the contents of your privy, and leave them to act upon each other for a few weeks, and then cover them with a shallow furrow, at a second ploughing you will reap the benefit of your labor. Or your marl, and shells, and lime—the whole being reduced to a powder as much as possible—may be applied by themselves, while the other matters are used elsewhere. Charcoal dust is good everywhere and with almost everything. Soot is best as a top-dressing. Shell marls are good on all soils; clayey marl is best on sandy or gravelly soil. The green marls of New-Jersey are suited to sandy soils, being rich in potash, and are efficient either in large or small quantities, from 20 loads to 20 bushels per acre.

For another season, these vegetable matters with weeds, etc., should be mixed with many times their quantity of sods, and with your manure from barn-yard and hog-pen and privy, in a compost, under cover, if possible, and allowed to remain all winter.

It will be more satisfactory to apply the fertilizers you have purchased by themselves, so that their effects can be well understood, and you will probably find that you can manufacture as good a preparation as Mexico or Peru can furnish, and at a much cheaper rate.

But you must be thorough in your treatment of the small parcel of land that you would improve. Leave nothing half done. Manure abundantly, plough and hoe wisely, and take good care of the crop. *If need be*, leave a part of your land entirely untouched. Next year it may pay for the rest which you give it.

Try this. Try it on a single lot—nay on a few rods only; and if you ever regret it, be good enough to describe the condition of your land, and the labor and applications, on the result of which you have been disappointed, and forward to us for publication.

We are thoroughly persuaded that our agricultural societies might do very much for the agriculture of the country by loaning money for such uses. It might be amply secured by a lien on the crops, or otherwise, and many farmers, who are now a reproach to the craft, would become earnest and successful examples and advocates of reform.

THE RASPBERRY.

The following remarks by a writer in the *Horticulturist* for the past month, will be useful to our readers:

From a given amount of money, the raspberry will, I think, return a larger amount of enjoyment and profit than any other fruit—the grape not even excepted—raspberries may be grown in almost every variety of fertile soil with nearly equal productiveness, but with greatly varied luxuriance, two constant requisites being maintained—depth and richness of soil.

In manuring for the raspberry, a deep alluvial soil, rich in vegetable mould, will require a light dressing of well-rotted stable manure, with a top dressing of ashes immediately after planting, employing from ten to thirty bushels to the acre. For a light sand or loam, a liberal dressing of compost will be necessary; to four loads of vegetable muck, add one load of rich barnyard manure, and from four to eight bushels of unleached ashes; and if lime is cheap, it may be advantageously used to twice the amount of the ashes, together with salt lye, which is the best addition to the compost that can be used for this fruit. Mulch the roots well, to keep the ground free from weeds; but the grand point to be insisted on is depth of culture, which leaves a constant supply of moisture, obviates the danger of too much wet, and gives scope for the ever-active roots to hold their revels, which they manifest in a profusion of fruit.

For the growing of good fruit it is not *necessary* that the canes should be supported, though it is advantageous, and also convenient in picking. The most obvious method is to support the canes of each hill with a stake; but a more effective and convenient way would be to stretch a wire along the rows, supported by a firmly-braced post at each end, and at intervals of about thirty feet drive stakes into the ground to support the wire at an elevation of about three feet, or four feet for the most vigorous growers; spun yarn will answer.

The rows should be four feet apart. North of the latitude of Philadelphia (and there also) lay down and cover the canes in winter. When the bearing season is at an end, the old canes should be cut out, and the shoots that have sprung up for next year's bearing should be thinned to the proper number, varying according to the strength from three to five; remembering that the crop is made or marred the year previous to its production. In choosing plants, the root, and ripeness and solidity of wood, not length of canes, should govern the choice; large canes, with small roots, are undesirable.

My first choice as a market fruit is the Hudson River (True Red) Antwerp, for its size, exceeding productiveness, and its firmness, which enables it to bear transportation. The current year one thousand dollars net were realized here from one acre of this variety. For field culture it deserves its celebrity, but for the garden it is much excelled by the seedlings of Dr. Brinkle. Fastolf is nearly equal in productiveness, but a much more vigorous grower, and somewhat more hardy. Its rich berries almost burst with their fine juice, and do not bear carriage well.

Franconia is a vigorous grower, and rather more hardy than either of the above, with large, dark-colored fruit, bearing carriage nearly as well as the Antwerp; it is a late bearer, of high flavor, and especially excellent for cooking.

Knevett's Giant is truly gigantic, excellent for the dessert, and for preserving. Rivers' new large-fruited Monthly had been a *disappointment till I* determined to thin out offsets, and let no more grow than were required for fruiting, and that had the desired effect; and it has proved the most productive that I have cultivated, more than twofold of the Red Antwerp.

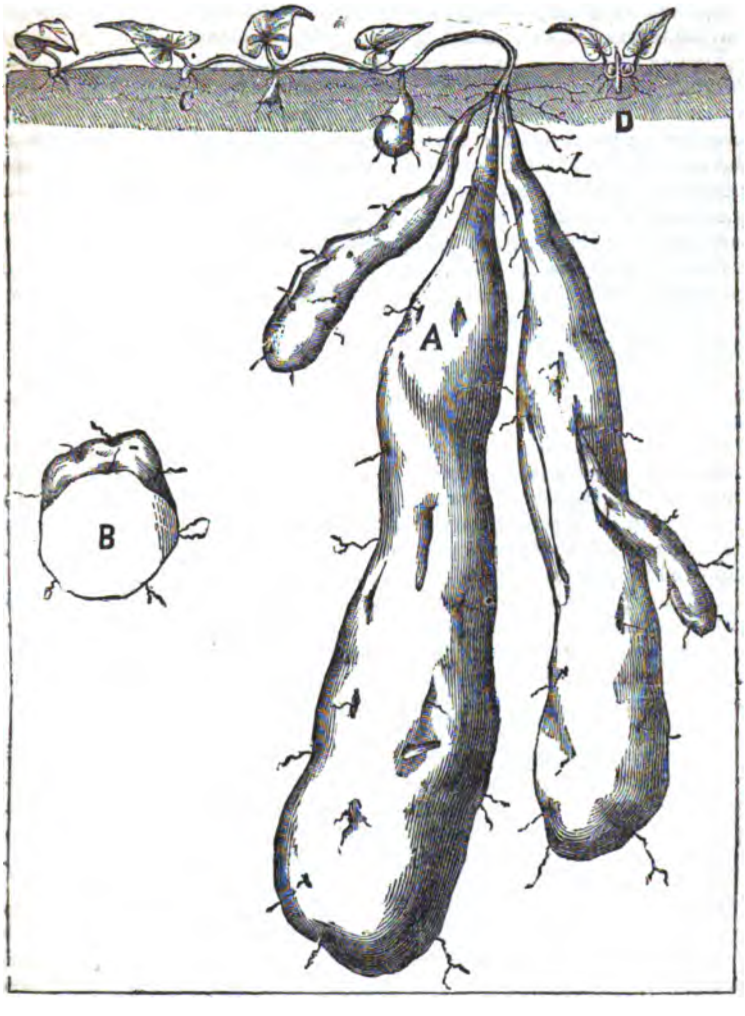
The Yellow Antwerp is a very good variety, but its berries are so much softer than Hudson River, that it is not grown for market. As Elliot remarks in his *Fruit Grower's Guide*, "it will soon give place to Brinckle's Orange and Colonel Wilder, which are far better varieties."

Ohio Ever-bearing, by those who like the black-cap variety, will be greatly prized, bearing as it does profuse clusters. Catawissa has much the habit of the last, but the fruit hitherto has not been comparable to it in flavor.

Col. Wilder is a white berry, of brisk, rich flavor—productive, excellent and hardy. Brinckle's Orange is among raspberries what Newtown Pippin is among apples. In conversation lately with Mr. Charles Downing, who is eminently conservative, he remarked: "This is by far the best raspberry in cultivation." It should have been called Opal instead of Orange, its translucence suggesting the brilliant play of light of that gem, and its beauty is equalled by its excellence; it is very vigorous, hardy, and productive; continues long in bearing; most excellent in every respect for field and garden.

The Sugar Crop.—At a convention of those interested in the sugar trade, held in New-Orleans in January last, the Hon J. Moore, President of the meeting, stated the sugar crop of 1854–55 as follows: 346,634 hogsheads of sugar, worth $40 per hogshead, and 577,840 barrels of molasses, worth $7 20 per barrel. The value of the sugar was estimated at $14,000,000, and of the molasses $8,000,000. The convention adopted resolutions in favor of some other place in Louisiana than New-Orleans as a sugar market.

CHINESE OR JAPAN POTATO.



DIOSCOREA BATATAS.

This new esculent is attracting considerable attention, from our journalists at least, and the present condition of the potato gives especial importance to any substitute that is offered. The following description of it is taken from a pamphlet published by Messrs. Wm. R. Prince & Co., Flushing, who have the tubers for sale.

This most important esculent was first introduced to Europe in 1850, it having been sent to France by M. de Montigny, French Consul at Shanghai, in Northern China, who transmitted a few roots to some learned men. It did not however attract their special attention to its great value and immense importance, until the year 1853, when some highly intelligent botanists recognized the great advantages to be derived from its extensive culture, and devoted themselves to its increase, and to the development of its merits.

Finding this root to be superior in its farinaceous properties to either of the cultivated species of potato, and that it was in no case subject to decay, whether in the ground or out of it, and was also of so hardy a character, as to withstand the severest winters uninjured, they have now come to the conclusion, in common with English botanists who have made similar experiments, that the Discorea Batatas is destined to supersede the precarious and uncertain culture of the ordinary Potato, *so liable to rot and other diseases;* and that the grand desideratum, a substitute in itself more valuable than the ordinary Potato, has at length been found. So strongly confirmed is this opinion in Europe, that we find it supported by all their leading Agricultural and Horticultural publications, and even by the "*Mark Lane Express,*" the principal representative and expositor of the agriculturists of Great Britain.

Roots of this plant have been produced in Middle and Northern France, weighing two to two and a half pounds, from tubers planted in April and dug in October.

One great point of superiority possessed by it, is that the roots may remain in the ground two or three years, always enlarging in size, and equally nutricious and excellent in flavor. Experiments have proved that when the roots are left for eighteen months in the ground, the yield is more than treble that of roots left but for one summer, and it is also considered that they are improved in quality. . . . . .

One very peculiar character of this plant is, that its roots run *perpendicularly* into the earth, thereby greatly enlarging its capacity to produce the greatest possible crops from a given space of ground. It has been calculated in the French publications from the experiments there made, that an acre will, in six months, produce 36,000 pounds, and in eighteen months, 120,000 pounds.

It possesses another great advantage:—the roots when placed in a cellar remain firm and perfect, as well as free from sprouts, and they can be kept out of the ground a year, without injury or deterioration of their alimentary qualities, and this property renders them invaluable for use in long sea voyages, and especially as a preventive of scurvy. . . .

The following will serve as a brief description:

Leaves opposite, triangular-cordate, deep green; Flowers, diœcious, composed of six petals, pale yellow, in clusters springing from the axils of the leaves. The male plant only has been introduced to Europe and America. Root fifteen to twenty-five inches long, and two inches in diameter, tapering to the head; the outward appearance similar to the white variety of the sweet potato; skin thin, readily pealing off when cooked; flesh snow white, delicately farinacious, with a slight Almond flavor, exceedingly grateful when used in the same manner as the ordinary potato, and deemed both richer in nutrition and superior in quality. It can be cooked by water or steam, or roasted, and in appearance and taste is like the finest meally varieties of the common potato. It requires but ten minutes boiling, whereas the common potato requires twenty minutes.

This root possesses another great advantage: it produces a fine, pure white flower, which will compare advantageously with the wheat flour of any country, and is equal if not superior in nutriment.

PERIOD OF PLANTING AND PROPAGATION.

As the Dioscorea is perfectly hardy, the tubers, as hereafter described, or small sections or eyes of the root (the same as potato sets) may be planted at the first opening of spring at a depth of about three inches; but during the present scarcity of this root, the course has been adopted of planting the sets closely in an ordinary hot-bed frame to start their growth, and afterward planting them in rows in the garden or field. The same culture as pursued everywhere with the common potato will serve successfully for the Chinese one.

The propagation of tubers for the extension of stock is also very simple. Like the sweet potato, the Dioscorea is a trailing vine. In six weeks from the time of planting the pieces of root, they will have formed shoots five to six feet in length. These shoots may be buried for two-thirds their length in slight furrows, one inch deep, allowing the leaves alone to be out of the earth, and the extremity of the shoots entirely so. Another mode is to take off two-thirds of each shoot and cut it into sections, each having a leaf with a small portion of the stem, (*D. plate*) and planting these in a bed, covering all but the leaf. In either case they will make roots after the first rain, or if watered, and in twenty or thirty days each will form a bulb or tuber at the joint near the leaf or at its axil. These must be carefully preserved when taken up in the fall, and will serve for spring planting the ensuing season; the tubers being as valuable and productive as sections of the roots. Tubers the size of a large pea, planted in the spring, form beautiful regular roots fifteen to twenty inches long by autumn, as has been fully proven *here* the past season, in confirmation of the European statement.

EXPLANATION OF PLATE.

A.—General representation of the root formed from a tuber in one season, one-fourth the natural size linearly, or one-sixteenth the size superficially.

B.—Section of root.

C.—Seed tuber formed by covering the vine.

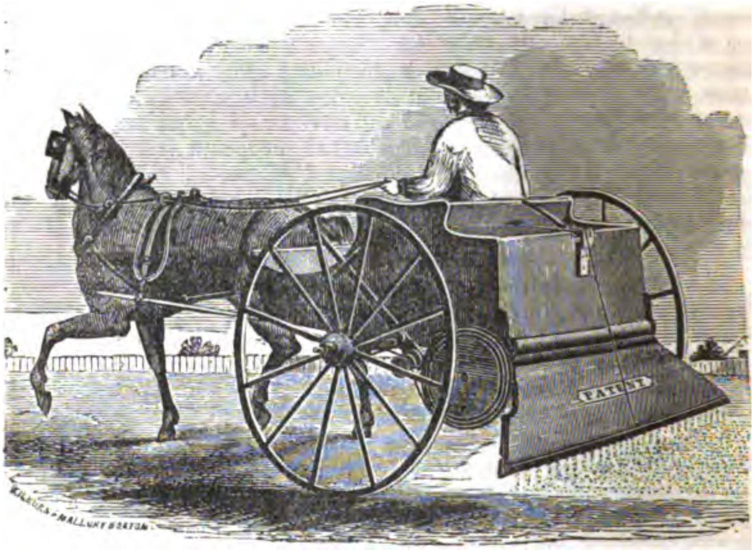
D.—Seed tuber formed from a section of the shoot.

The foregoing is sufficient to show the claims which are made for it. Whether its flavor and its ability of production, etc., will bring it into general use remains to be tested. We have never tasted, nor even seen a specimen of it. If one is sent to us we will pass our judgment on it. If it produces as freely and keeps so long as it is here described to do, large quantities might be imported from China or Japan, at an immense profit, ere it is common through the country. A dollar a root for a potato ought to command a very fine article.

Distemper in Dogs.—We are a great friend to dogs, if they have sufficient moral character to let the sheep alone; but when they meddle with mutton, our advice is a pill of cold lead or a salutary portion of strychnine. With distemper in young dogs we have had some unlucky experience. The disease is apt to come on when the animal is laying off his puppyhood, and he will droop and pine away, and lose the use of his hind legs, and finally go off into convulsions. We lost a beautiful pet spaniel in that way a few years ago, that we brought all the way from Massillon, wrapped in a pocket handkerchief—a present from our friend Cahill. We believe the best medicine for this distemper is the homœopathic arsenic pills, or if these are not at hand, take arsenic from the druggists, say six grains, to be divided in three doses; give one grain first in the morning, then two grains the next morning, and last three grains the third day. Give it on a small piece of meat.—*Ohio Cultivator.*

FOR THE PLOUGH, THE LOOM AND THE ANVIL.

NEW AND VALUABLE SEED-SOWER.



BOSTON, Feb. 8, 1856.

M. P. PARISH, Esq.:

DEAR SIR:—Knowing that a good share of your journal is usually devoted to the interests of *agriculture*, and knowing also that you make it a point to pick up all information which will be of general interest to the farmer, I would undertake to describe to you a simple invention of an ingenious mechanic of this city, which invention, when brought into general use, will work labor-saving wonders in the line for which it was invented. The machinery referred to is a seed-sower, worked broadcast or in drills, and being without valve or geer requires no skill whatever to operate it. It consists of a hopper of any size you choose, at the lower extremity of which is a longitudinal opening, outside of which lies, in the same direction, a pair of elastic surfaced rolls or regulators. These regulators have their surfaces so near to each other as to prevent the escape of seeds between them. On one of the ends of the lower roll is fastened a *cone*, around which runs a belt, passing round a similar cone on the inside end of the hub of one of the wheels. This cone is so made as to allow of sundry changes of speed in order to seed light, medium, or heavy. The seed as it lies in the hopper presents itself directly to the opening between the rolls, and giving the rolls the slightest motion outward, you draw a *mouthful* between them the entire length of the rolls, no one kernel of seed riding another. Turn again slightly in the same direction and the first *mouthful* is discharged into a distributor, and other seeds fill the entire opening as before, and so on until the hopper is exhausted. The distributor into which the seed falls as it comes from the regulators is no more nor less than a seed-board with a series of radiating tubes, down which the seed courses until it reaches a point some two inches from the lower edge, where the tubes cease, and the seed is allowed to again mingle and fall over the edge of the distributor in one continuous sheet in immediate vicinity of the ground, if the farmer is sowing in windy weather. If not windy, the distributor, being *hinged*, can be raised to any given height found practicable.

The all-important principle involved in this simple machine is this: The discovery of the successful method of taking all kinds of seeds from a hopper with flexible rollers without injuring the seed, and doing it without the aid of valves, geers, or any other objectionable motion or appliance formerly used. The principle of these flexible rollers can be carried to any extent, so as to sow two rods wide if necessary, and so certain is the movement of them that the farmer can lay his seed upon the ground with mathematical accuracy and in quantity to the acre his soil may require. As a machine for sowing broadcast or in drills, I think it has no rival, for I find upon examination that a man with a hand machine can sow 15 acres daily, and do it in a manner impossible to accomplish by hand. With the use of a horse—a boy driving—thirty to forty acres is a day's work, and with two horses, sowing with a machine distributing twenty five to thirty feet wide, sixty to a hundred acres can be covered every ten hours! A farmer can make his own calculations upon this matter, if the idea of putting down seventy-five acres per day seems fabulous. He will find that his horses walking at the rate of three miles per hour, sowing twenty-five feet wide, will cover but a fraction short of ninety acres in ten hours! Every farmer of however limited means can afford to have a machine either for hand or horse power, for by the use of it he can ordinarily save the price of it in labor in *one year.* There is no kind of grain whatever but what it will sow with accurate rapidity, from corn or cotton seed down to clover and herds grass, also all kinds of dry fertilizers to wit: Guano, lime, plaster, bone-dust and ashes, dusting the ground merely, or laying it on with a perfect coating if desired. The same machine is so constructed as to sow any width you choose, from one foot to the full capacity of the machine, enabling the farmer to finish out a narrow strip of land in case necessity requires.

For drill sowing the drills are so constructed as to admit of changing the lines of drilling from wide to narrow as the operator chooses, depositing the seed at any desired depth and covering at the same time. The same width of land can be drilled at one and the same time, that can be sown broadcast, there being only the necessity of a change of seed-board. Any quantity of grain can be carried in the machine, and when the boy discovers that his hopper is nearly exhausted, all he has to do is to cut the string of one of the bags carried under his feet and turn the grain into the hopper as the machine moves on.

I believe that this simple piece of agricultural machinery is destined to take an important position in our grain-growing West, and save a vast amount of labor now for the want of it uselessly expended. I have entirely, unsolicited by the inventor, imperfectly described the same, and have to hope that ere long farmers may have the comfort and convenience of seeing this as well as all other labor-saving machinery in their line, relieving the drudgery necessary to their occupation.

Respectfully,
W. S. S.

The cost of these machines is as follows: Those sowing from 3 to 5 feet wide, $7 a foot; from 8 to 10 feet wide, $6 50 per foot; from 15 to 20 feet wide, $5 per foot.

FOR THE PLOUGH, THE LOOM AND THE ANVIL.

BROAD-CAST AND TOOTH GRAIN DRILLS.

MR. EDITOR:—From private letters received from Mr. Wm. S. Sampson, of Boston, we are led to make some remarks upon Grain Drills. We believe them to be useful implements, but have always expressed ourself in favor of the "Tooth Drill," prefering it to the "Broad-cast," for the plain reason that we are not acquainted with the latter instrument. Mr. Sampson asks us to explain why a "Tooth Drill" will produce more grain to the acre than the "Broadcast" implement. We give this reason in answer to his inquiry: It has been found impossible, it would seem from the experience of others upon the subject, to make a "Broad-cast Drill" so that it can be made to cover grain at a desired depth. In other words, some of the grain is not put into the ground deep enough, while on the other hand some of it, it would seem, is put in too deep. An experiment, tried by a Mr. Bowman of this country, showed that when wheat or other grain was deposited at the depth of *four inches* beneath the surface of the soil it would not grow, but would decay. The same grain, if it had been put two inches below the surface, would, as proven by his experiments, have taken root and grown. Sometimes we have noticed that grain even on the top of the ground has grown, but the straw was of weak organization. Mr. Bowman's experiments proved that grain should be put into the ground generally about *one inch and a half* in depth. In sowing or putting in grain a man must usually be governed by the condition of the soil. If dry, sow or drill in deeper than if the soil were wet.

Now the question is, "Can a 'Broad-cast Drill' be made so that it will sow grain an equal depth?" Mr. Sampson says there is a "Broad-cast Drill" manufactured in Boston, which is very simple in its mechanical construction, that will sow at from thirty-five to one hundred acres per day. We send his letter herewith for your perusal, and for publication in connection with this article.

We cannot say whether a tooth drill would produce more grain per acre than one made like the Boston broad-cast instrument. We always have used the tooth drill, and have been successful in its use. Numerous reasons can be assigned for using the tooth drill, and we do not know but that equally as many reasons could be given in favor of the Boston broad-cast drill. The advantages of a tooth grain drill are these:—*First*, It drills in the grain any desired depth; *Second*, It puts it into rows, and between those rows the sun's rays are admitted; *Third*, It serves as a harrow, and consequently is a substitute for it; *Fourth*, It causes grain to grow a uniform height, and consequently the grain heads are generally about the same size. The yield of grain, after taking into consideration all these things, must, of course, be much greater than if the same ground had been sown broad-cast by hand. At least we are of opinion that such is the fact. Though we are of opinion that the drill of which Mr. Sampson speaks is a very valuable implement, and we wish he would favor the readers of your journal with an idea of the same. We believe in spreading agricultural information. If a broad-cast drill is better than a tooth drill let us hear of its merits through the press.

BALDWISVILLE, N.Y. Very respectfully, W. TAPPAN.

[The following is the letter referred to by Mr. Tappan.—ED.]

BOSTON, Feb. 7, 1856.

W. TAPPAN, ESQ.:

DEAR SIR:—Your favor of the 31st ult. is safe at hand. I am obliged to you for the opinion therein expressed. I still, however, cannot see why *drill* sowing should be preferable to *broad-cast*, provided the latter is *evenly* done, for the reason that I supposed the ground being *entirely* covered would yield much better than when only *partially* covered. I am going upon the supposition of *yield* only, in the one case and in the other. Will you explain?

It has always been presumed by me to be a desideratum with the farmer to have his soil well covered, and, when once done, the crop "did" the best, and the yield was the greatest.

This "seed-sower" of which I spoke in my last is well calculated to scatter the seed uniformly, and cover the ground with a mathematical quantity as the farmer may in the outset choose, and do it so rapidly, that nothing appears to be left for the machine but complete success. I am so little acquainted with the modus operandi of practical farming that I am quite in the dark as to the farmer's necessities in the way of labor-saving machinery, but if allowed to surmise, should judge that the mechanic was fast coming to his relief. The inventor has already entered the field with the *reaper*, the *mower* and the *raker*, and now if I mistake not the *sower* is to be added to the list, not a mere *hand* machine, but a machine doing its work with wonderful accuracy, at a nominal cost, and seeding from *thirty-five* to one *hundred* acres daily! These astonishing results are brought about by a piece of machinery, so simple in its construction, and so certain in its operation, that the wonder is that the method was not thought of before. Always awaiting your advices with pleasure, I remain Your friend, WM. S. SAMPSON.

No. 2 Broad, corner State street.

COAL-BURNING BOILERS.

A BRIEF description of the various forms of coal burning boilers now in experimental and practical use, will be interesting.

Boardman's Boiler.—The fire-box is of the ordinary kind. The waist of the boiler is nearly of the same shape, in section, as a flat-bottomed smoke-box—such as on the Taunton, Rogers or Norris engines. A shaped flue extends from the upper part of the fire-box throughout the length of the boiler. In the flat bottom sheet of this, tubes are set, extending down to the flat bottom of the boiler. Under this is a pan or bottom, serving as a flue for the smoke. This flue or pan continues for the whole length of the bottom and enters an ordinary smoke-box at the front end. It is seen that the fire goes through the tubes, while the water is around them, as in the ordinary boiler.

Phleger's Boiler.—We are not quite sure but that Mr. Phleger's later improvements may have dispensed with some features contained in his boiler, as seen by us last winter. But presuming there has been no change, the following will answer:

The water space around the fire-box extends also under the bottom. The grate is made of tubes filled with water, and opening into the water space of the fire-box. About two feet back of the tube sheet is a diaphragm or water bridge, rising from the water bottom, say three feet high. From the crown of the fire-box, and within perhaps 18 inches of the tube sheet, another diaphragm or water bridge also comes down about *one foot—this bridge* or water space being inclined toward the tube sheet so as *to deflect the flame* and sparks downward. Both water bridges, of *course, go entirely across* the width of the fire-box. They protect the tube sheet from the *direct blaze* from the coal, and prevent particles of coal from being drawn through the tubes. It is proper to say that in front of the main water bridge, or between that and the tube sheet, there is no water bottom, but only a door through which ashes and cinders can be removed. The fire-box is inclosed, however, practically air-tight, and the draught supplied by a fan, worked by the exhaust steam. The barrel and tubes of the boiler are the same as in any ordinary locomotive.

Dimpfel's Boiler.—The fire-box is of the common kind, except so far as relates to the fixing of the tubes. From the front side of the fire-box, in the usual position of the tube sheet, a large flue opens, and extends nearly through the whole length of the boiler, leaving only an ordinary water space of three or four inches around it, and against its forward end. From near the forward end of this flue, a chimney opens up through the water and steam room above it, and is continued, in the usual form, above the waist of the boiler.

The tubes, which we are now to describe, carry water, and are surrounded by fire. These tubes are set in the *crown* of the fire-box, below which they are bent with a round bend, and thence run horizontally through the main flue or combustion chamber, opening again into the water space at the front end of this flue. These tubes are of iron, 1¼ inches in diameter outside.

Winan's Boiler.—This is in the most general use of any for burning both hard and soft coal. The principal peculiarity is in the fire-box. The grate is very long, say seven feet. The grate bars are cast very heavy, two together in one casting, and a shank comes out from each, through the back of the fire-box, and in this shank is a round hole through which a rod or handle is inserted to stir the grate and loosen the coal. All along the width of the furnace, and down to the grate, a wide grated door is fixed. The lower edge of this door swings just even with the top of the grates. The grating or openings through this door are upright slots, say 5 by 1¼ inches, quite near together, and for the double purpose of admitting fresh air constantly to the back side of the fire, and for inserting a poker to stir the coal. Above this grating is the common door for firing. The top of the furnace slopes in the length of the boiler, the fire-box being shallow at the back sheet and deepest at the tube sheet. About midway on this slope, an opening is made through the crown of the fire-box, this opening being covered or exposed by a sliding cast-iron door. Around this opening, a hopper or curb is raised up—large enough to hold coal, perhaps, enough for once firing. A loose, swinging cover is placed on top of this curb. When running, the back doors of the fire-box are seldom opened, but this hopper is filled, and its contents then dumped (by withdrawing the sliding door) over the grate.

It will be remembered that the firemen's footboards are on the tender, and that there are two decks or landings, one over the other—from one of which the lower doors may be fed, and from the other of which the coal-hopper may be filled.

The ash pan has a tight bottom, so as to hold three or four inches of water, into which the slag and loose coals drop and are extinguished. In the smoke-box there is a variable exhaust. The chimney is straight, has no deflecting cone, and only a grating over its top. For all the other coal boilers named, the chimney is mostly of this kind.

Millholland's Boiler.—The fire-box, variable exhaust and chimney are es- tially like Winan's. There is, however, no coal-feeding hopper on the back of the fire-box, as the fire-boxes on these boilers are square, five feet each way. The peculiar feature of these boilers is the combustion chamber. This is a sort of smoke-box, placed within the boiler, surrounded by water, and about five feet from the fire-box tube sheet. One set of the tubes lead from the fire-box into this chamber, and another set lead from this to the smoke-box, there being thus two sets of tubes and four tube sheets. A square leg comes down from this combustion chamber, through the bottom of the boiler, there being a water space around this and a door on the bottom. Through this leg a man may get into the combustion chamber to set and caulk the flues. A few of the stay bolts in this leg are hollow, to admit air to complete the combustion of whatever gases have not been already burned over the grate.

O. W. Bayley's Boiler.—The novel feature is contained in the fire-box. This is divided into three chambers or compartments, a water space, four or five inches thick, passes from near the top of the back side of the fire-box, sloping downwards to below the tubes on the front side, thus dividing the fire-box into an upper and lower chamber. The lower part is again divided in its width by a fore-and-aft vertical water bridge, connecting at top with the water space above described. A square opening is made through the vertical water space, so as to open the two lower chambers into each other. Two openings are also made and covered by sliding doors, in the sloping water space above. The fire doors open, one each into the lower chambers.

The mode of working is this. Fire is first made on the grates on both sides, or in both of the lower chambers, and both of the sliding doors above are opened. After the coal gets well to burning and when fresh coal is applied, the fire-box is managed as follows: The left hand sliding door only, upon the sloping water space, is left opened. The right hand fire door, or feeding door is also opened, and coal applied to the right hand grate. The flame of this coal pass through into the left hand lower chamber, over the burning coal on that side, thence up through into the upper chamber and off to the tubes. The firing is then reversed by shutting the left hand sliding door and opening the right hand one. Coal is then put upon the left hand grate. The gas passes through into the right hand lower chamber, over the hot fire, up into the upper chamber and again off through the tubes. By this means, the coal becomes partly coked before it is finally burned, and the gases are probably quite entirely consumed.

Latta's Boiler.—A recent application of this boiler by the Boston Locomotive Works has attracted some attention. The furnace is a square chamber, seven or eight feet high and with a water space all around it. The water is contained in coils of tubeing. A length of iron pipe, say of two inches diameter, is laid across the furnace above the grate. This pipe has a return coupling on one end, and another length of pipe is brought back, and so on for a few courses in height. Then the return couplings divide or throw out each two return nozzles, thus doubling the area of tubing through which the steam and water circulate. After a few courses of these double tubes, the return couplings again divide and send back four lengths of tube, side by side, and all connected with the original tube. And after a few courses of these quadruple tubes, the couplings again divide and send back eight lengths of the tube with which number the pile is completed. As many separate and complete piles, or courses, of this kind, are laid up, as will occupy the whole width of the fire-box. These piles are connected at top and bottom with the water space of the furnace around them, and the heat of the fire circulates freely through them. The chimney surmounts the whole.

M. W. Baldwin & Co's. Boiler.—Perhaps no other form of boiler in successful use has been made to burn coal with so little change of form and structure from that of the common kind. The fire-box is five or six feet long, the back of the fire-box and fire door the same as for an ordinary wood-burner; the grate is stationary and of the common pattern, only heavier. The boiler has a variable exhaust and open chimney. About the only peculiar feature is a horizontal row of two-inch iron tubes running across the width of the furnace, just under the crown. These give an increase of heating surface and quicken the circulation of the water.

There are many other varieties of boilers now in experimental use, but we are not able to furnish as full particulars of them as we would wish. From those we have mentioned, leading ideas may be had of the forms of boilers already most prominently before the public.—*R. R. Record.*

AGRICULTURE OF MAINE.

The "Preliminary Report" of the Secretary of the State Agricultural Society, Dr. Ezekiel Holmes, gives a statistical account of the Agricultural and Horticultural Societies in Maine. The Bangor *Courier* makes the following abstract:

It appears that the number of farms in Maine is 77,016—comprising 2,039,596 acres of improved land, and 2,515,797 acres of unimproved. The number of farms in New-Hampshire is but 47,408; in Vermont, 43,312; in Massachusetts, 55,082; Connecticut, 31,756; Rhode Island, 8,398.

In 1850 there were bred in Maine 41,721 horses, 133,556 milch cows, 83,938 working oxen, 125,890 other cattle, 451,577 sheep, and 54,598 swine—the aggregate value of which stock is about ten millions of dollars.

Of crops in that year, there were raised 296,259 bushels of wheat, (a little more than a quarter of what had been raised when not troubled with he weevil,) 101,916 bushels of rye, 1,750,056 bushels of corn, 218,107 bushels of oats, 1,364,034 pounds of wool, 205,521 bushels of peas and beans, 3,436,000 bushels of potatoes, 151,731 bushels of barley, 104,532 bushels of buckwheat.

The orchards produced a value of $342,865, as shown by the deficient returns of the census—the market gardens $122,367.

There were 9,243,811 pounds of butter made, and 2,434,454 pounds of cheese.

Of hay 755,889 tons were cut, and 18,000 bushels of different grass seeds raised.

There was also raised 40,000 pounds of hops, 18,000 pounds of flax, 880 bushels of flax seed, and 252 pounds of silk cocoons.

94,000 pounds of maple sugar, 3000 gallons of molasses, and 19,000 pounds of honey and beeswax manufactured.

The home manufactures were worth $500,000—and the value of slaughtered animals was more than $1,500,000.

The Bangor *Courier* says that the census returns give but an approximation of the total amount and value of their agricultural productions.

Of dairy products, the 133,556 milch cows produce an average of 69 pounds of butter to the cow. There are seven States which exceed this, viz.: Michigan, 70 pounds to a cow; New-Hampshire, 73; Connecticut, 75; Pennsylvania, 75; New-Jersey, 79; Vermont, 83; New-York, 85.

The amount of cheese made is 18 pounds to a cow—seven States do better—Connecticut taking the lead, at 62 pounds to a cow.

In the number of working oxen only four States in the Union go beyond Maine. These are: New-York, Virginia, Tennessee, and Missouri. "In the *quality* of cattle we challenge the Union."

IMPROVEMENT IN LATCHING LOCKS.

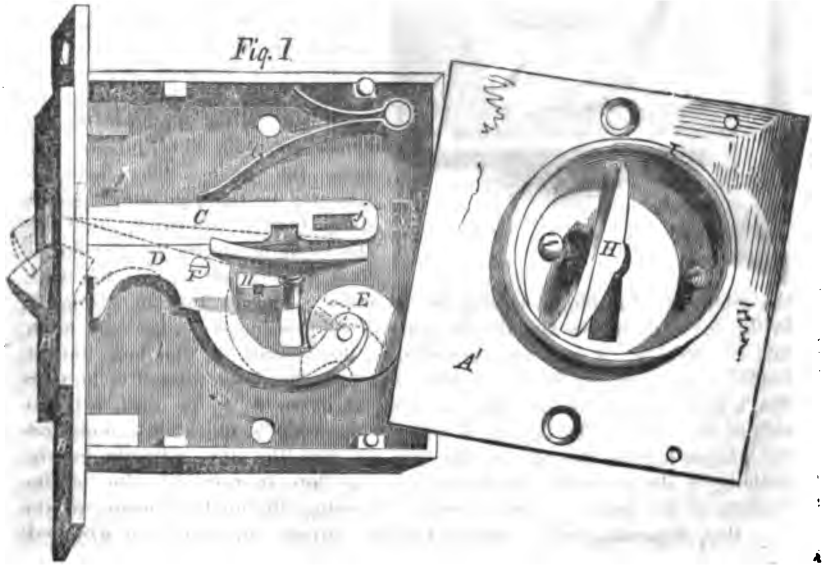


Fig. 1

The accompanying engravings are illustrative of the improved Latching Lock patented in this country by Mr. Edmund Field, of Greenwich, Ct, July 3, 1855, and in Europe April, 1855.

In common door locks, the latch and locking bolt act independently, the latch serving for convenience by day, and the bolt and key for security by night.

The principal feature of novelty in the present invention consists in an ingenious method of combining the latch and lock, so that by the act of turning the key, the latch is made to unite its strength with the bolt, and thus increase the security of the lock; when the key is turned in the reverse direction, the latch assumes its ordinary uses. These, and other important advantages hereafter described, are obtained without any increase over the price of ordinary locks, and without complication of parts. They may be manufactured even at less cost than ordinary locks.

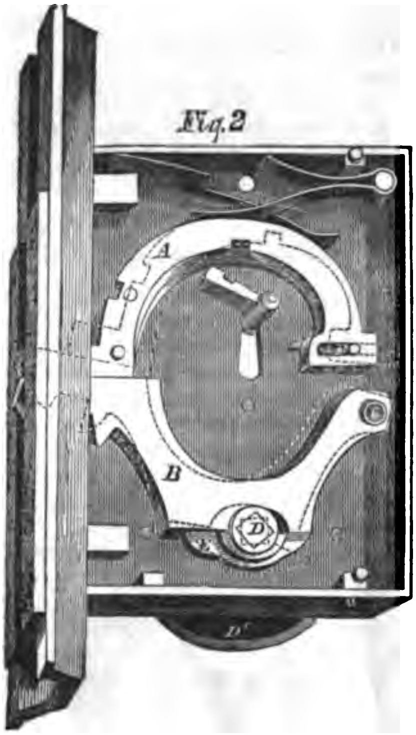


Fig. 2

Fig. 1 shows a mortise lock, intended for use on the *sliding doors* of freight cars, *ship doors, churches*, banks, arsenals, *windows*, and wherever a *strong, safe, and convenient* fastening is *wanted. A is* the shell of the lock, which is *made* in the usual manner; A' is portion of the shell removed so as to exhibit the interior parts; B face plate by which the lock is fastened into the mortise; B' catch plate to be fastened to the jamb; C locking bolt which slides in and out in the usual manner; C' tumbler behind the locking bolt; D, latch pivoted at F, and furnished at its inner end with a *friction* wheel, E. When the bolt, C, is locked, as shown in fig. 1, the latch, D, is fastened down, and holds firmly in catch-piece, B.' Turn key H in direction of the arrow, and bolt C withdraws, and frees the latch. The latch is operated by the key, which presses upon friction wheel, E, and lifts the latch, as shown by the dotted lines, F; the bolt, C, also lifts with the catch, the stop pin, J, serving for its pivot. There is but one spring, G, in this lock; it serves the double purpose of pressing down the bolt, latch, and the tumber. I is a cup attached to the exterior of the lock, and intended as a shield for the key. After the lock has been placed in its mortise, a hole is bored for the cup, which is let in so as to be flush with the side of the door. The key, H, it will be observed is quite small, and does not project beyond the edge of the cup, so that the door, with the key remaining in the lock, may be shoved clear up into its recesses. One of the features of the improvement consists in operating the latch by means of the key, thus dispensing with a knob; for this purpose the lock is so arranged that the key cannot drop or be taken out except when the locking bolt is thrust forward, and the latch fastened down; in other words the lock must be locked before the key can be removed.

Large heavy doors should always be made either to slide or roll, for they last longer, remain in good order, and afford better security than hinged doors; the latter will sag, sooner or later, and become inconvenient. For sliding and rolling doors of every kind, the lock we have described seems admirable adapted. The outer end of the latch is made with double shoulders, which affords additional strength.

Fig. 2 shows another form of lock, in which the same general principles are involved as those contained in the preceding device. The chief difference is that the bolt, A, and latch, B, are operated independently, although both combine, in the act of locking, to increase the security. The latch turns on the pivot, C, and is operated by the knob, D', the shaft of which D, and lifting piece, E, are arranged in the common manner. When the bolt is thrown back the latch becomes freed, and may be lifted by turning the knob, its position when thus raised being indicated by the dotted lines; it will be seen that the lock bolt also lifts with the catch, the pin, F, serving as its pivot. Two springs are used in this lock, one of which presses on the tumbler behind the bolt, the other acting on the bolt, and the bolt pressing down the forward end of the latch. Locks of this description are intended for parlor doors.

We have described the above locks as being specially adapted to the securing of sliding doors, but they may be also applied with equal facility to hinged doors of every description. The invention appears to be one of real utility, and calculated to supply a very general want. For further information address the inventor, Portchester Post-Office, N. Y.

GRAND BRONZE CASTING.

The Springfield *Republican* notices the colossal statue of Washington modelled by H. K. Brown, in process of casting at the great foundry of the "Ames Company" in Chicopee.

The successful termination of their work is now announced. It has been cast in fragments, and that one just finished is the largest and most difficult of the whole, namely, the entire body of the horse. As the preparation of the mould has required considerable time, and great care, and as many hazards attend the execution of such a work, the hour appointed for the trial was one of no small interest to the contractors and those employed upon it. About one hundred persons had gathered from the neighboring shops to witness the scene, wholly unprepared, however, for what followed. Soon after the hot metal began to flow into the mould, and in all directions.

The workmen who stood upon and around it were enveloped in a shower of liquid fire, which burned their hands and faces, and set fire to their garments, while the spectators fled in terror from the building. Mr. Ames, who was near by, ran in at this moment, and was so appalled at the sight that he wished to have the work abandoned. But the foreman of the shop, Mr. Langdon, anticipating some trouble, had agreed with his workmen not to give up the object of their long endeavors if a desperate effort could save it. With courage that deserves great praise, they persevered and filled the mould, escaping with only slight injuries.

The contractors may well congratulate themselves over their work, for it is the first and only achievement of the kind made in this country, and perhaps nowhere else but in Munich, Bavaria, could so large a piece of bronze statuary be cast.

DESCRIPTION OF THE PERSIA.

The following description of the new Cunard steamship Persia, whose arrival we announce elsewhere, is from the Liverpool *Courier*, and will be read with interest:

The dimensions of the ship are as follows:

Length between perpendiculars,	360 feet.
Length over all,	390 feet.
Breadth of hull,	45 feet.
Breadth over paddle-boxes,	71 feet.
Depth,	32 feet.
Gross tonnage,	3000 tons.
Space for engines,	1221 tons.

The Persia is rigged as a bark, (not ship rig, as stated in most of the papers,) and she will have sufficient spread of canvas to enable her to cross the Atlantic with her sails alone, should necessity require it, which may be judged of from the fact that her main yard is 76 feet long. The vessel sits very slightly on the water, and her symmetry is to be seen in the fact that she looks smaller than she really is when alone, her great proportions only appearing when taken in detail, or when compared with other standards. The Persia has an elliptical stern, neatly gilt, and a half-length female figure-head representing a Persian maiden, with musical instruments and other articles of female occupation. The paddle-boxes are slightly gilt, and in the center of each is a bold carving, representing a lion springing from between two palm trees.

The Persia is the first iron steamship built for the British and North American Royal Mail Steam packet company, her Majesty's government having hitherto required wooden vessels in case they should be wanted for war purposes.

The keel of the Persia is 13 inches deep and 4½ inches thick, scarfed in lengths of 35 feet, and a rabbit in the keel for the garboard streak to fay into. The sternpost is 18 inches broad and 5 inches thick. The rudder stock is 8 inches in diameter. The framing of the ship is of angle iron, placed nominally to the stem, at intervals of 18 inches from center to center midships, and 20 inches from center to center about five feet before and abaft the engine-room bulkhead. Amidships these ribs are 10 inches deep, with double angle iron riveted to each edge, so as to present in section the appearance of a letter H placed sideways, thus, 工. The Persia is divided into seven water-tight compartments; and a novelty has been introduced into her framing forward which, in the bow compartment, is laid diagonally, with a view of bearing a collision, should it ever occur, in the strongest arrangement of the structure. The vessel is plated in and out alternately, in accordance with the present custom of building iron ships. The keel-plates are $1\frac{1}{16}$ of an inch in thickness; at the bottom of the ship the plates are $\frac{15}{16}$ of an inch in thickness; from this section to the load water-line they are $\frac{3}{4}$ of an inch; and above this they are $\frac{11}{16}$ of an inch in thickness. The plates round the gunwale are $\frac{7}{8}$ of an inch in thickness.

Everything that care and skill could devise to make the Persia a safe ship has been done by Mr. Napier. In the water-tight compartment, for example, provision has been made, much the same in principle as that adopted by Mr. J. Scott Russell's ship the Great Eastern, namely, the formation of a substantial double ship. The goods carried by the Persia are to be stowed in water-tight compartments, each about 72 feet long, 16 feet wide, and 20 feet deep, which form a species of tanks, sufficient in themselves to float a considerable weight.

The next point to consider is the motive power of the ship, which consists of two side-lever engines, which were constructed by Mr. Napier. We have no standard of computing engine power to which all will agree, hence there is a difference in expressing the power of a steamboat, which Mr. Napier thus applies to the Persia: "According to the strict Government rule of admeasurement her power is equal to that of 900 horses; according to the plan laid down in the Earl of Hardwick's bill, her power is equal to that of 1200 horses; and according to James Watt's old-established rule of 33,000 ft. lbs. to the horse, she is expected to work up to the pith of between 4000 and 5000 horses." As a standard, we adopt the Earl of Hardwick's bill. Let us look, however, at some of the dimensions of the Persia's engines, and other particulars, which are as follows:

Diameter of cylinders, - - - - -	100 inches.
Length of stroke, - - - - - - -	10 feet.
Diameter of paddle-wheels, - - - -	40 feet.
Length of floats, - - - - - - -	10 feet.
Depths of floats, - - - - - - -	3 feet.
Number of boilers, - - - - - -	8
Number of furnaces, - - - - - -	40
Pressure on boilers, - - - - - -	20 pounds.
Length of engine-room, - - - - -	115 feet.
Breadth of engine-room, - - - - -	45 feet.
Capacity of coal-bunkers, - - - -	1400 tons.
Estimate consumption of coal, - - -	4½ tons per hour.

The boilers, which are tubular, are placed in two groups, fore and aft, and they are fired amidships. It may also be stated that the ship has been so planned that the weight borne will repose on lines parallel to the keel. The coal-bunkers are placed beyond the boilers, at each extremity of the engine-room. Each boiler has five furnaces, and they are so independent that any one of them can be shut off, should it not be required. In one particular the Persia differs from the Arabia, the steamer which came last on the line, namely, having smaller boilers, but a greater number of them, so as to enable the engineer to follow up the stroke of the engine with a longer pressure of steam. There are, besides, two donkey boilers and engines, for pumping the feed water into the boilers; and in connection with them are eight refrigerators for abstracting the waste heat from the brine as it is blown from the boilers, to heat the feed water.

Nothing can be conceived more striking than the working of the engines. The Scotch papers, in speaking of them, use the terms "wonder," "veneration," "awe" and, indeed, the sight is marvelous. There was a little noise from the engines on the trial trip, as it is usual on these occasions to work them loosely, but when they are screwed up, which they will be for sea, there will be no noise whatever beyond the low singing of the exhausted cylinders. Such ponderous machinery does not elsewhere exist, and to stand in the engine-room and look up at the mighty shafts, cranks, and rods, moving with silent, steady, and solemn, but powerful ease, is a sight which must attract even the most thoughtless observer, and produce respect for the intellect and practical skill of the men who produced them.

From the engine-room to the cabin is a short transition. Here are accommodations for 260 passengers, who will sleep in berths on one deck. There is a passage all round the ship below the main deck, so that no passenger will need to come on deck to get to or from his berth. On the same deck is an elegant cabin for gentlemen who desire to sit in the center of the ship, and adjoining it is the ladies' cabin, which is a gorgeous room, upholstered in a style fit for a queen, and adorned with choice paintings from the pencil of Mr. D. M'Calman, of Glasgow, whose groups of flowers also decorate the main saloon. This cabin is paneled with bird's eye maple, and it is heated by steam, as are also all other parts of the ship. The height between decks in this part of the ship is eight feet six inches, and the berths are amply lighted and ventilated. The berths are supplied with the usual conveniences; and it may be mentioned that there are no less than twenty water-closets in various parts of the lower deck. On the upper deck are the main and fore saloons, the officers berths, and other accommodations. At the extreme after-end of the ship is a large smoking-room, with cabins for the captain and chief officer, from which they can see the entire working of the ship. Next to these is the main saloon, which is 60 feet long, 20 feet wide, and 8 feet high. This saloon will dine about 170 persons. It is paneled in bird's-eye maple, with twisted pilasters, and neatly gilt frieze and ceiling. The upholstery is red velvet, with red satin window curtains, embroidered in gold. The panels are filled with floral paintings similar to the ladies cabin. Elegantly framed mirrors are placed at the fore end of the saloon, as in the other vessels of the line; but at the after-end a difference has been made by the introduction of two beautiful book-cases, and massive folding-doors which open into the smoking-room. The skylight is filled with stained glass, the prominent features being a Persian and a Persian woman, in their native costume. Forward of the saloon are the kitchen and pantry, each of which has an area of 300 feet; the floors of which are beautifully laid with tiles. The fore saloon, and the various store-rooms and officers' apartments, are also placed on the main deck; while the crew are accommodated in the topgallant forecastle.

We might enumerate the conveniences of the Persia to any extent, and speak of her baker's and her butcher's shops, her joiner's and carpenter's workshops, her surgery, ice-houses, lamp-houses, bath-room, and similar arrangements. But it is not necessary to dwell upon these points, as the Persia carries within herself appliances of comfort excelling the first hotels in the country, and she possesses saloons which have not unfitly been compared to the apartments of a baronial residence. But perhaps an allusion to one part of her outfit will be more striking than mere description. The Persia, fitted out on the same scale as the other vessels of the line, will require 400 counterpanes, 1200 blankets, 1600 sheets, 800 pillow-slips, 4600 towels, and 400 table-cloths; all of which, or nearly so, would come into requisition on a current voyage.

The summit of the saloons and officers messrooms forms a hurricane deck, well railed, on which there is an uninterrupted promenade 370 feet in length, and of proportionate width. This deck will form the passengers' promenade, and it will be very seldom that it cannot be used as a dry and comfortable place for walking.

The Persia has two sets of double-steering wheels, so that she can be steered either aft or amidships, as circumstances may require.

The crew of the ship will be made up as follows:

Engineers Department—Engineers, 8; firemen, 54.

Stewards Department—Cooks, 8, stewards, 36.

Sailing Department—Officers, 6; able-bodied seamen, 54; doctor, 1; purser, 1; carpenter 1; joiner, 1. Total, 170.

The Persia will accommodate 260 passengers, and carry 1200 tons of measurement goods, and 1400 tons of coal, at a draft of 22 feet, the weight of herself, cargo, and stores being then 5400 tons.

SPEED OF THE PERSIA ON HER TRIAL TRIP.

The distances run by the ship on her trial trip from Greenock to Liverpool were as follows:

	Knots.
From Cloch Lighthouse to Ailsa Craig,	43
to Corseill Point,	15
to Mull of Galloway,	27
to Point of Ayre,	22
to Bell Buoy,	68
Total,	175

which is equal to 203 statute miles, so that the vessel steamed 16 knots, or 19 statute miles per hour, which was the actual speed through the water. It might be supposed that this high rate of speed would have been dangerous, but engineers will understand how distant that fear was when we state that the preparation of tallow and white lead usually put on the bright work of the engines of sea-going steamers was as hard at the end of the voyage as at the beginning. The slightest heating of the engines would have instantly melted it away wherever it was near a bearing.

The Cunard Line, as it is popularly designated, commenced operations in 1840, with the view of connecting the Eastern and Western hemispheres by the periodical sailings of steamers. The first vessel dispatched was the Unicorn, Capt. Douglas, which sailed from Liverpool on the 16th May, 1840, as a pioneer, for Halifax and Boston, with 25 passengers. The Unicorn was a comparatively small steamer, and when she got out she was placed on the line from Picton to Quebec, as an auxiliary steamer.

The Britannia was the first steamer built for the ocean line, and she was dispatched on the 4th July, 1840, for the same ports, to which she carried 63 passengers.

Substantially, this Company has enlarged the size and power of its steamers six times since the Unicorn went out, as follows:

First, the Biitannia, Acadia, Caledonia, Columbia.
Second, the Hibernia, Cambria.
Third, the America, Europa, Niagara, Canada.
Fourth, the Asia, Africa.

Fifth, La Plata, Arabia.
Sixth, the Persia.

These vessels may be classified thus:

The four first of 1200 tons and 440 horse power each.

The Hibernia and Cambria, of 1500 tons and 600 horse power each.

The America, and the vessels named with her, 1840 tons and 700 horse power each.

The Asia and Africa, 2250 tons, and 800 horse power each.

La Plata and Arabia, 2,203 tons and 1000 horse power each.

The Persia, 3600 tons and 1200 horse power.

But perhaps the clearest way of putting the size of this vessel is to compare her side by side with other vessels of the line in length, power and tonnage, and to include in the same comparison some other well known steamers.

	Length. Feet.	Register. Tons.	Nom'l power. Horses.
Britannia, - - - - - -	200	1200	400
Cambria, - - - - - - - -	217	1500	600
America, - - - - - -	250	1840	700
Asia, - - - - - - - -	300	2250	800
Arabia, - - - - - -	320	2393	1000
Persia, - - - - - - - -	390	3600	1200
Atlantic, (Collins line,) - - - -	287	2280	800
Great Britain, - - - - - -	330	3500	500
Himalaya, - - - - - -	350	3500	700

Of the above ships, the Britannia, the Acadia, the Caledonia, and Hibernia were sold a few years ago—some of them going into the hands of the Spanish Government, where they still remain. The Columbia was lost in July, 1843. The La Plata was sold to replace the ill-fated Amazon, which was burned three or four years ago on the Spanish coast.

English Patents.

IMPROVEMENT IN FILES. By HIRAM POWERS, sculptor, Florence.—This invention consists in forming perforations or throats to the fin-feather or other cutting surfaces of rasps or files, for the purpose of enabling them to clear themselves of the material cut away by them, and to prevent their filling or choking, or allowing the particles to pass through the perforations or throats.

The improved rasp or file resembles somewhat the ordinary grater in appearance, though entirely different in its operation and effect.

The perforations in the plate of which the instrument is formed, may be round oblong, oval, or angular; and the cutting-edges which partially surround each perforation or throat, may be either curved, straight, or pointed, plain or serrated, as the different purposes to which it is to be applied may require. The cutting-edges do not entirely surround the perforations, but are raised on one side of them only, and are inclined at such an angle as to cut to the best advantage, and at the same time to throw the particles removed by them into and through the perforations or throats.

The files or rasps may have cutting-edges raised on one or both edges, as may be found best, and they may be made of any desired form—whether flat, curved, angular, or hollow; or they may be made in rods or bands, and applied to cylinders or wheels, and in these various forms may be employed for reducing fruit and roots to pulp or dust; and also for reducing the surfaces of wood, stone, ivory, bone, metals, and other substances, and generally for all purposes where the comminution of substances is required.

As the form of cutting-edges, and their position relative to the perforations or throats, which allow the particles to escape and pass through or by the body of the instrument, render filling and clogging almost impossible; this file can be used upon lead, zinc, copper, and tin, or other adhesive substances, as well as upon the harder metals, the perforations serving the same purpose that the throat of a common hand-plane serves in cleaning the file from the shavings removed by it.

IMPROVEMENTS IN GIVING SIGNALS ON RAILWAYS BY ELECTRICITY, AND IN INSTRUMENTS AND APPARATUS CONNECTED THEREWITH. By EDWARD TYER, Dalston.—The first part of this invention relates to improvements in apparatus which are to be so fixed at any required point upon a railway that the wheels of an engine or train, or other moving body, passing over such apparatus, shall impart motion to certain instruments called "connectors," whereby electric currents or circuits are closed, broken, reversed, or coupled up, which electric currents actuating or operating upon other electro-magnetic instruments (included in the same circuit) shall serve to point out, register, or otherwise record the position of any engine or train that may be passing or has passed over such apparatus.

In order to transmit signals from one part of the line to any other part, it will be necessary to place suitable instruments (in conjunction with the spring lever) in such a position, that whenever a downward motion is given to it by the wheels of a moving engine or train, such motion shall be imparted to the instrument in connection therewith, and the electric current will thereby be set in motion.

The current from the voltaic battery can at once pass along the wires, which being in connection with one or more electro-magnetic indicating instruments, fixed at one or more distant stations upon the railway, signals can be transmitted from the place where this apparatus is fixed, to the distant instruments in connection, and thereby indicate the passage of a train over the place where this connector and spring lever is fixed.

In order to prevent any stones, dirt, or mud from interfering with the correct action of this form of connector, the whole may be inclosed in a suitable case provided with a stuffing box for the axle of the lever to pass through.

Another method of closing, breaking, or coupling up electric circuits or currents, which can be sometimes used with considerable advantage, is to place a small elastic bag, partially filled with mercury, under the spring lever before described; a tube, closed at one end, and having one or more wires passing into this closed end, is caused to dip into the mercury contained in the elastic bag; the whole is then rendered air tight with cement or by any other suitable means; and the wires, so entering the tube, form part of the electric circuit. The use and action of this instrument is as follows: So long as the lever fixed in close proximity to the rail remains in a quiescent position, the mercury in the lower part of the elastic bag does not come into metallic contact with the wires in the upper part of the tube; but whenever the spring lever is depressed, the air in the bag forces the mercury up the tube, which, coming into contact with the wires at the upper end, immediately completes the circuit, and the required signal is given to the distant station. By combining one or more of these tubes in the same bag, or by using any number of bags and tubes, any arrangement of connector can be constructed, as the nature of the case may require, in order to close, break, reserve, or couple up electric circuits or currents. Instead of having the tube closed at one end it is preferred to have a bulb or cylinder at the upper end, so as to receive any superfluous amount of the compressed air.

The second part of the invention relates to the adjustment of connectors with one or more of the rails of a railway in any required part thereof, in such a manner that the weight of a passing engine or train, in causing a small deflection of the rail from its natural position, shall bring the connector into action.

The third part of this invention consists in the application of magneto-electric machines in combination with the before-described spring levers, in such a manner that whenever the wheels of an engine or train pass over any of these contrivances, the downward motion imparted thereto shall be rendered available to set in motion the coils of a magneto-electric machine; and, as is well known, during the brief period such coils are in motion, currents of electricity are induced in those coils, which electricity, by suitable insulated conducting wires, may be transmitted to any required point or place, and if there are any electro-magnetic instruments included in the same circuit that this induced electricty is traversing, such instruments will be operated upon or set in motion, and any required signal can be given.

The fourth part of the invention relates to certain improvements in the electro-magnetic instruments termed "indicators," which are for the purpose of indicating the position of an engine or train upon any part of the line.

The pointer is caused to assume one of two distinct positions, for the purpose of indicating two distinct signals; and the pointer having assumed one of such two positions, remains fixed there until operated upon a second time by another electric current. The improvement consists in thus obtaining two distinct and permanent beats or deflections of the pointer, and differs from the plans usually employed for giving or receiving signals, inasmuch as that in the latter case the magnetic pointer is generally made to assume a vertical position, and the deflections, either to the right or to the left, are caused by the influence of electric currents passing in close proximity to such magnetic needle of the telegraphic instruments; but so soon as the electric current ceases to flow, then the needle or magnet again returns to its vertical position, and points to zero. Now this kind of instrument is not applicable to the plans adopted, and which have been previously described, for closing, breaking, or coupling up the electric current, because it will at once be manifest that during the rapid passage of the wheels of a train over the connector and spring lever, the vibrations of a magnetic pointer, if placed in a vertical position, would be too rapid and uncertain, and, not being permanent, they might, during the instant they were taking place, escape the attention of the signal man in charge. In order to obviate those difficulties, the patentee constructs the magnetic needles or pointers of his instruments so that their centers of suspension are below their centers of gravity; consequently, if suitable stops are placed for the needles to rest against, the needles will always remain against either of these stops, and never point to the vertical, and a permanent deflection will be obtained.

The fifth part of the invention consists of improvements in the arrangements of electro-magnetic apparatus, for the purpose of calling into action local batteries; the object being to enable any great resistance to be overcome, and also to perform any electro-magnetic effect that requires considerable force. It is well known that a current of electricity in passing along a wire of any great length, has to overcome the resistance offered by such wire, and the electro-motive force actually available is very much weakened thereby, and in some cases is not sufficient to accomplish the desired amount of work. Now, in order to obviate these difficulties, it has been the practice to use various arrangements of apparatus to call into action local batteries, and thereby to obtain any amount of electro-magnetic force that may be desired. It sometimes happens that in giving signals on railways by the instruments and connectors before described, a local battery is found very advantageous.

The sixth part of the invention relates to improvements in those instruments used for the purpose of reversing or changing the direction of electrical currents, and termed "pole-changers" or "commutators." They are used for giving signals on railways, in order to transmit a signal to an approaching engine or train from any part of the railway; so that whenever the train arrives at certain points upon the line where an apparatus, hereinafter to be described, is fixed, the electrical current being turned on (or reversed in direction, as the case may require), such engine or train shall receive the signal from these pole changers or reversers.

The seventh part of the invention relates to improvements in giving signals from any point or place upon a railway to an engine or train in motion, and *vice versa*, from an engine or train in motion to any other point or place upon the railway. This is accomplished by fixing upon the line, at any required distances, metal bars, having inclined planes at each end, so adjusted that if two springs or other levers be placed in an inverted position upon an engine or carriage, the levers will, on the engine or carriage coming up to the points where these metal bars are fixed, strike the lower end of the inclined planes of the metal bars, and, gliding up them, form metallic contact with such bars; and these being in communication with a voltaic battery, the electric current will have a tendency to pass from the bars to the metal spring levers fixed upon the engine or carriage; and if an insulated wire were carried from the spring levers to any electro-magnetic instrument, likewise fixed upon the engine or carriage, such instrument would be operated upon by the electricity flowing from the bars in communication with the voltaic battery, and every time the engine or carriage glided over these metal bars, a signal could be given to and received from an engine or carriage and a station, or the *vice versa*.

The eighth part of the invention relates to improvements in electro-magnetic instruments, to be fixed upon a locomotive engine, either to sound a whistle or to turn the "regulator" of such locomotive, and bring the train to a standstill.

IMPROVEMENTS IN ELECTRIC TELEGRAPH INSTRUMENTS. By JOHN SANDYS, St. Luke's.—This invention consists in a peculiar combination of parts into an instrument suitable for communicating by electricity. For this purpose a curved or bent magnetic needle is used, which moves on a suitable axis. This needle is hung on its axis in such manner as to bring its poles on either side of the end or one pole of the soft metal interior of an electro-magnet; hence, when a current of electricity is passed in one or other direction, the poles of the magnetic needle will be attracted or repelled accordingly, and the pointer fixed to the axis will be moved in one or other direction. The magnetic needle has a projection, which, by stops, prevents the magnetic needles being moved too far in either direction. It is preferred, in constructing the electro-magnet, that the soft metal interior should be composed of a bundle or cluster of soft wires in place of a solid piece of soft metal.

A Mode of Transmitting Telegraphic Messages across Bodies of Water. By James Bowman Lindsay, Dundee.—This invention consists in a mode of transmitting telegraphic messages or communications, by means of electricity or magnetism, through and across water, without submarine cables, water being made available as the connecting and conducting medium for the electric fluid.

On the shore from which a message is to be sent, a battery and telegraph are set up, to which are attached two or more wires terminating in metal balls, tubes, or plates placed in the water, or in moist ground adjacent to the water, at a certain distance apart, according to the width of the water across which the message is to be transmitted, (the distance between the two balls, plates, or tubes connected with one battery, to be greater than across the water, or to the balls, plates, or tubes of the opposite battery *when practicable*). At the opposite side of the water, or that to which the message *is to be conveyed*, two other similar metal balls, plates, or tubes are *placed, the same* being either immersed in the water or in the earth, as above *stated. These* balls, tubes, or plates have wires also attached to them, which lead to and are in connection with another similar battery, with which the needle or other suitable indicator or telegraphic instrument is put into connection, and messages are then transmitted in the usual way.

As regards the power or primary agent employed for transmitting telegraphic messages, the patentee remarks that it may be either voltaic, galvanic, or magnetic electricity, and the battery for evolving the same such as is used for telegraphic purposes. And with respect to the telegraph or instrument for transmitting messages, he proposes to employ any of the instruments in known use which are most efficient for that purpose, observing that the needle or indicator may be arranged or disposed in the instrument, either in a vertical or in a horizontal position, and the coil of wire necessary to the movement of the needle may also be increased or diminished, according to circumstances.

In any suitable part of the course of the wire or wires, a coil of wire is arranged in connection with the needle or indicator of the telegraph, as a medium of communication between the needle or indicator and the battery, in the manner usually practised.

The patentee remarks that he does not confine himself to the use of plates or balls of metal immersed in the water, as the same result may be obtained by inserting metal, charcoal, or other suitable terminal poles in the earth, communicating with the water by the moisture which the earth contains. It is important also, to the proper performance of the above mode of transmitting messages, that the distance between the terminal poles on one side of the water be greater than the distance between the plates or other terminators situated respectively on opposite sides of the water, otherwise the circuit will not be complete, and the current will therefore fail to operate upon the needle of the receiving telegraph.

Improvements in the Arrangement of Electric Telegraphs. By John Henry Johnson, Lincoln's-inn-fields.—This invention relates to the construction of portable electric telegraph apparatus, which may be placed in connection, when desired, with any part of the line wires of a railway telegraph, or employed in mines, manufactories, private houses, public or government offices, and colleges. The improvements consist in so arranging the whole of the apparatus necessary for receiving and transmitting intelligence, that it may be contained in a box or case, which may be carried about with facility.

Without confining himself to details, the following is the arrangement preferred by the inventor: A battery of eighteen or more elements is contained in the bottom of a shallow mahogany or other box, fitted with suitable handles, for the facility of transport. On the top of this box is fixed a small wooden case, opening by a hinge-joint, containing an alarum, manipulator, and receiver. The hinged portion of this case, which opens back, contains a nautical compass, two coils of wire, and a lightning conductor. The battery, which is of sulphate of copper, is (for the purpose of transport) necessarily of a different construction to the ordinary batteries.

In place of using water in a liquid state, sand, moistened with water for the zinc, and with sulphate of copper for the porous cells, is employed. When the apparatus is required for use, the hinged cover is turned back, and the operator attaches the end of the wire from one of the two coils to a rod or chain, which is then suspended from, or otherwise connected to, the line wires of a railway or other telegraph. The circuit is then established by connecting the wire of the second coil or bobbin to a conductor (either wire or earth). The operator then works the handle of the manipulator, bringing it over a contact point, and observes, from the deviation of the magnetic needle in the compass, whether the current is passing; whereupon he may transmit and receive messages to or from any desired station on the line with as great certainty and facility as by the fixed apparatus at present in use.

Improved Implement for Digging Turnips, etc. By Wm. Lister, near Richmond.—This invention relates to a novel construction of implement which will facilitate the operation of removing turnips and other bulbous roots from the ground in which they are growing. For this purpose the patentee mounts in a suitable frame (which runs on wheels and is drawn by animal power) adjustable blades, which will enter the ground and make a horizontal cut therein, somewhat below the bulb of the turnips, thereby removing the tails of the turnips, and loosening their hold in the ground.

In operating with this implement, the blades are caused to enter the ground at a depth that will just clear the bulb of the turnip; and this level is retained as nearly as possible during the operation of tailing. The action o the implement will be not only to cut off the tails, but also to raise the bulb slightly out of the ground, and render it unnecessary for the laborer to use any great muscular exertion in gathering up the turnips. It will be understood that this implement may be applied to facilitate the gathering up of mangold-wurzel and other roots, if thought desirable.

The patentee claims the construction of implement as above described, which, although possessing some of the characteristics of the horse hoe, is capable of performing work essentially different from that for which it is designed.

Miscellaneous.

TO THE FRIENDS OF COL. J. S. SKINNER.

THE SKINNER MONUMENT.—Our readers will remember one or two occasions in which the plan of a monument to Mr. Skinner and a fund for his widow, has been laid before them, and appeals made on behalf of the object. Circulars were also sent to a large number of individuals, requesting donations. This was done at a season when the finances of the country were in a most embarrassed condition, and perhaps this is the reason why the call was so coldly received. We should be exceedingly sorry to believe that there were not thousands of his personal friends and others who were familiar with his valuable services in behalf of the industry of this country, who would freely give their five dollars each in behalf of such a cause. But the *efforts hitherto* made reveal a sad deficiency, the whole amount *received scarcely exceeding* the expenses incident to the effort; and those, with a *half score of exceptions*, are only donations of two dollars, which payment was *offset by a three* dollar publication. We are intending to make a renewed effort the *present* season, and hope the readers of this journal and others who will be *addressed* in another form will respond without delay, and the effort prove in a good degree successful. There will be very little expended hereafter in any preparatory operations, so that the donations made will *tell* in the nett results, almost to the entire amount of the sums received. Please send in your donations to this office.

PORTMONNAIES, RETICULES, ETC., ETC.—We have recently visited the establishment of our friends, Messrs. Zurn & Rantfle, and have been exceedingly pleased with the excellent style of their manufactures. They have a salesroom at No. 60 Nassau street, where a good assortment of the finest style of goods in this line—pocket-books, portmonnaies, dressing-cases, etc., etc., are constantly on hand, and at reasonable prices. Their manufactory is in an upper story, and is extensive and convenient. We do not hesitate to commend these gentlemen to our friends as quite worthy of their confidence, and assure them they will have no occasion to be disappointed by ordering anything which they manufacture. We shall be happy to act for them in these matters if they will send to us. They took the premium at the World's Fair.

A NEW EXPANSIVE VALVE MOTION.—The London *Railway Gazette* speaks of a new Expansive Valve Motion for Steam Engines, described at the Institution of Mechanical Engineers, by G. M. Miller, of Dublin. In this motion a single eccentric only is used on the driving axle; this works the rod of one of the valves direct, and the rod of the second valve is worked by the eccentric through the intervention of a loose ring on the driving axle, having two arms projecting at right angles to each other, to one of which the second valve-rod is attached, the other arm being connected with the eccentric. By this means a similar motion is given to both valves, but corresponding to the relative positions of the two cranks at right angles to each other. The eccentric is molded upon a transverse slide, which is capable of being moved backwards and forwards across the axle by means of a handle, answering to the ordinary reversing handle or lever, and acting through the medium of a pair of racks and pinions. By moving the transverse slides the throw of the eccentric is altered or reversed, thereby enabling the engine to be worked expansively or reversed. A model of the new motion was exhibited, showing it as applied to a locomotive engine; and the particulars were given of the successful working of the new motion in two engines upon the Great Southern and Western Railway of Ireland.

MANNA SUGAR.—The following interesting letter was handed over to the Commissioner of Patents by Dr. Bernhisel. It is from Mr. Aaron Daniels, who resides in Provo City, Utah Territory, and is dated August 11, 1855:

"According to agreement, I send you a small cake of the sugar made from the syrup or honey found on cotton-wood trees, and, as you requested, will give you a few particulars concerning the manner in which I discovered it. As I passed along to and from my corn-field, (which is situated about one mile from town,) I discovered a white substance on the cotton-wood trees, which, upon examination, I found to be a sweet substance, somewhat resembling the honey-dew in the States, but in far greater abundance, and possessing other properties, some of the cakes being as thick as a knife-blade or window-glass. I thought, from the quantity there was on the trees, that sugar might be made of it, and signified the same to a number of my neighbors, who all ridiculed the idea; so I thought I would try and see what I could do with it. I took home two bushels, and washed the twigs, and then strained and boiled down the water, which made one and a quarter pound of sugar. Since that time most of the town have been at work. Some families have made as high as one hundred pounds of sugar. It makes excellent molasses, and as good vinegar as I ever saw. I averaged about eighteen pounds per day with two three-gallon kettles."

Although the quantity of sugar made from this syrup is small, yet we are assured that it is still profitable, from the fact that sugar in that region of country is worth *forty cents* a pound.—*Union.*

PAPER BAG MANUFACTORY.—In Beach street, above Hanover, (Eighteenth Ward,) Messrs. Lewars & Corbon have successfully commenced the manufacture of paper bags, for druggists, grocers, bakers, confectioners, and other dealers, with machinery driven by steam. There are six machines now in operation, which produce an average of 60,000 bags per day, of sizes to contain quantities varying from one to twenty-five pounds. There is an apparatus also for spooling and cutting the paper the required width, and a press for cutting the bags after they are manufactured. After this process of spooling, the paper is taken to the machine, which cuts the paper in the shape desired, folds it, applies the paste, and turns the edges required to be pasted, and then passes off the bags, on tapes and rollers, into a drying room, in which steam pipes are introduced. Through this the bags are conducted by continuous tapes and rollers over a surface of about fifty feet, and when thrown out on piles, the bags are dry and ready for packing. The firm now employs eighteen hands, and use nearly one and a half tons of paper per week. The manufactory is a great curiosity to persons who have never seen the operation of making bags by steam.—*Phila. Ledger.*

SALT MANUFACTURE of 1855.—The Superintendent of the Onondaga Salt Springs, V. W. Smith, Esq., has communicated his annual report to the Legislature.

From the report we learn that the total amount of revenue the past year is $61,065 59, and the total expenses same year, $50,198 13; shewing the net revenue for 1855 to be, $10,867 46. The whole amount of salt inspected during the year is 6,082,885 bushels.

The quantity of salt inspected in 1855, exceeds the inspection of 1854, by 279,538 bushels. This, says the report, is less than may have been anticipated, but the deficiency will be found in the item of coarse salt. The increase in fine salt for the year 1855 is 515,888 bushels over 1854. Had the coarse salt works yielded an ordinary return, the increase in the manufacture for 1855 would have exceeded 500,000 bushels.

The production for 1856 is estimated at 6,800,000 bushels; and within a period of five years it is believed the manufacture will be extended to 10,000,000 bushels.—*Syracuse Journal.*

BALTIMORE—WHOLESALE WATCHES AND JEWELERS.—Baltimore since 1833 has been celebrated for this branch of the wholesale trade. It was during that year that the Messrs. Canfield, Bro. & Co., No. 229 Baltimore street, established their firm. Since that time they have been engaged almost exclusively in the Southern and Western trade. They import extensively of watches, diamonds, pearls and other precious stones; jewelry, fancy goods, bronzes, clocks—and manufacturers of silver-ware and jewelry. We believe their stock of goods are unequalled in the United States. One of the partners residing in Europe gives them advantages over most other houses engaged in the same business. Their reputation for manufacturing elegant silver-ware is well known throughout the country. We understand that the sales of watches alone in this establishment exceeds $175,000 per annum.—*Cotton Plant.*

SLIGO MARBLE MANUFACTURING COMPANY.—This is the style of another Company that has commenced operations at their quarry, two miles east of Knoxville. The Company, we understand, is organized with a capital of $200,000, and it is their purpose to seek the Northern and Eastern markets with their marble, and to direct the attention of the people in those sections to the marble of East Tennessee, which, for ornamental purposes, without doubt surpasses that of any other portion of the Union. The management of the Sligo Company is in the hands of Mr. James Sloan, of Nashville, who is a practical man, and has much experience in the working of marble. We trust other companies of the same kind may be attracted to this region, and that they will succeed in giving to East Tennessee marble, what it deserves, the character of a staple.—*Knoxville Register.*

MINERAL WEALTH OF ENGLAND.—The following is the estimate of the London *Mining Journal* of the mineral wealth of England for the current year:

Coals at pits, - - - - - -	£23,000,000
Iron ore, - - - - - -	3,000,000
Copper ore, - - - - - -	1,300,000
Lead ore, - - - - - -	1,500,000
Tin ore, - - - - - -	700,000
Silver, - - - - - - -	200,000
Zinc ores, - - - - - -	15,000
Salt, earth, sulphur, building stones, etc.,	8,000,000
Total, - - - - -	£32,715,000

THE PAPER PLANT IN WISCONSIN.—Under this head (says the Boston *Post*) we have before us a description of a plant discovered in this country by Mrs. A. L. Beaumont, of Arena. She has furnished us with a fine sample of cotton, and also of flax, from the same plant which she describes as follows:

"I discovered, two years ago, a plant that yields both cotton and flax from the same root, and believe I am the first person that ever cultivated, spun, or knit from it. I am persuaded that any article that will make as good cloth as can be made from this plant will make good paper; hence I call it the paper plant. It can be planted in the spring, and cut in the fall or winter. It bleaches itself white as it stands, and will yield at least three or four tons to the acre. From a single root that I transplanted last spring, there grew twenty large stalks, with three hundred and five pods, (containing the cotton,) with at least sixty seeds in each. From this root I obtained seven ounces of pure cotton and over half a pound of flax. It is a very heavy plant, and grows from six to seven feet high."

NEW BOOKS.

THE WORKS OF CHARLES LAMB; WITH A SKETCH OF HIS LIFE AND FINAL MEMORIALS. By SIR THOS. NOON TALFOURD, one of his executors. In two volumes. New-York: Harper & Brothers. 1855. 12mo, 555 and 611 pages.

Charles Lamb needs no introduction to the readers of *The Plough, the Loom, and the Anvil.* His peculiarities and his abilities are equally familiar to them. They know him as a man of wonderful genius, and one of the most pleasing of the writers of recent times. With the announcement of a new edition of his works it is therefore only necessary to say that these volumes contain a biographical sketch, his published letters to Coleridge, Southey, Wordsworth, Field, Manning, Wilson, Barton, Hazlitt, etc., his controversy with Southey, and final memorials.

The second volume contains the Essays of Elia, Rosamund Gray, Recollections of Christ Hospital, Essays on Shakspeare, and cotemporaries, and on Fuller, Hogarth, and Geo. Wither, sundry letters, poems, sonnets, blank verse, album verses, etc.

The volumes are well printed, and would form a valuable addition to any library.

A JOURNEY IN THE SEA-BOARD SLAVE STATES; WITH REMARKS ON THEIR ECONOMY. By FREDERICK LAW OLMSTED, author of "Walks and Talks of an American Farmer in England." New-York: Dix & Edwards. 1856. 723 pages, 12mo.

Mr. Olmsted is well able to criticise the agricultural usages of any country. His former volumes contain abundant evidence of this. He is also a very pleasant writer. He knows how to tell a story, and is excellent in descriptions. In this volume he has little compassion for the victims whom he condemns, though he commends many farms and plantations as models of their kind. There is, however, no mistaking his disapproval of slavery, though he exhibits an unusual amount of candor and coolness in his remarks on that subject. He seems to act upon the motto which he cites from Macaulay, that "Men are never so likely to settle a question rightly as when they discuss it freely." The volume comprises what he saw and heard "during the first three of fourteen months' travel in the Slave States." He says many very pleasant things of the persons he saw, of incidents in his experience, and scenes which he met with.

He says in his preface, "As a democrat he went to study the South, its institutions and its people; more than ever a democrat, he has returned from this labor and written the pages which follow." He visited Virginia, North Carolina, South Carolina, Georgia, Alabama, and Louisiana.

Letters from the United States, Cuba and Canada. By the Hon. Amelia M. Murray. Two vols. complete in one. New-York: G. P. Putnam & Co., 321 Broadway. 1856. 12mo, 402 pages.

Miss Murray has written a very peculiar book. It might be supposed to be her private diary, intended to remind herself years to come of incidents, novel or amusing, but too unimportant to be retained in the memory. All her movements are set down with remarkable minuteness. The character of our hotels is too important to a traveler to be overlooked, and her favorable judgment, as at Cleveland, Ohio, in the Weddell House, where she says "the accommodation is excellent," is, comparatively, quite worthy of note. Our railroads are sometimes commended, but at *Dover*, N.H., she "entered a branch railroad" which "was very slow, as it stopped at several stations for mercantile purposes." Of the people she says, "My *impression of the American* people has been hitherto more favorable than I *expected," and yet she says* further on, "Only the fear of starvation would induce a *English man or woman to* fix themselves for life in America." Miss Murray is a zealous, possibly a *good botanist*, and her reader is made acquainted with the localities of many plants, most *of which* are very common, although when she speaks of "Hemlock Spruce," as she does repeatedly, she certainly departs from the system of such botanists as we are familiar with. The book is written quite too carelessly, as may be discovered in passages already cited, and also where she says, failing to receive expected letters, "This is very disappointing;" and again, in her visit to the Supreme Court, "A counsel spoke," etc. Such errors abound. But this book adds one amusing volume to that kind of light literature which, though ever so unintellectual, is much in demand.

Familiar Science; or, the Scientific Explanation of the principles of Natural and Physical Science, and their practical and familiar applications to the employments and necessities of common Life. Illustrated with upwards of one hundred and sixty engravings. By David A. Wells. Philadelphia: Childs & Peterson. 1856.

Mr. Wells is a writer of peculiar merit. He is not only a man of science, but what is quite as important, he well knows the wants of the people, and prepares his publications accordingly. His illustrations and demonstrations are simple and lucid. This volume is a fit companion of his previous publications, either of which would do much to establish a good reputation in the departments of science which he has exhibited. The volume before us contains treatises on all the sciences usually denominated "physical or natural," with chapters on the Philosophy of Manufactures, Agricultural and Rural Economy, Geology and Mineralogy. It also gives some explanations of the arts, as weaving, etc.

Edith; or, the Quaker's Daughter. A Tale of Puritan Times. By one of the descendants. New-York: Mason & Brothers; 1856. 12mo, 407 pages.

This story is finely written, and is full of interest. The sympathies of the reader are constantly awake during the progress of the narrative, and the result is pleasing. Many touching scenes are scattered through the volume. In respect to its literary merits this volume is a specimen of the best and of the highest style of its class. As a matter of history we should have many things to say. The Quakers of those times too closely resembled the Abby Folsoms of the present day in their factious opposition to all government, to receive the unqualified sympathies of candid minds.

Le Bon Ton.—Journal des Modes and Monthly Report of London, Paris, and New-York Fashions. S. T. Taylor, 407 Broadway.

The subject of fashions perhaps belongs in the list of topics appropriate to our journal, but it is one in which we should not claim to speak *ex cathedra*. But those ladies in whom we have entire confidence pronounce this to be *the* work in that department. The fashion plates are engraved and colored in Paris, the description of the fashions, also, is written there, and the numbers throughout are brought out in most excellent style, unsurpassed, if equalled elsewhere. Monthly terms, $5 a year. We will forward specimen numbers, *if to be had*, on receiving the price and a postage stamp. The editions are sold rapidly, and circulated extensively.

The Mormons at Home. With some Incidents of Travel from Missouri to California, 1852–53, in a series of letters. By Mrs. B. G. Ferris, wife of the late U. S. Secretary for Utah. New-York: Dix & Brothers. 1856. 12mo, 299 pages.

Mrs. Ferris accompanied her husband, like a faithful and fond wife, to the territory of Utah, and passed the winter there, returning by the way of California. She has here given a description of what she saw and learned. Most of it has appeared in Putnam's Magazine, but it is well worth this form of issue, for it gives what we doubt not deserves entire confidence, and tells a story quite worth general attention.

Annual of Scientific Discovery; or, Year Book of Facts on Science and Art for 1856, etc. By David A. Wells, A.M. Boston: Gould & Lincoln; New-York: G. P. Putnam. 378 pages, 12mo.

Mr. Wells has here given to the public another of his annual volumes describing the progress of science and the arts in the year past. The work is well executed, and, like another volume of his noticed in these pages, it does him much credit as a scientific editor.

NEW MUSIC.

Wm. Hall & Son.—We have received the following among the choice pieces of music neatly published by this extensive house:

"Souvenir d'Ecosse, fantasie de Salon." Par W. Vincent Wallace. A remarkably brilliant and very effective composition.

"Forget me Not, a Romance for the Piano Forte." By W. Vincent Wallace. This is very beautiful and not very difficult.

"The Dreams of Youth." Ballad by W. J. Robson. Composed by J. W. Cherry. Simple and very pretty.

"When the Moon is brightly Shining." Sung by by Mr. Sims Reeves. Composed by B. Molique. A very pretty composition.

"Sleep Mine Eyelids Close." Ballad, words and music by Annie Fricker. Simple and pretty.

"I heard thy Fate without a Tear." Ballad by Lord Byron. Composed by J. W. Hobbs. A very pretty composition.

List of Patents Issued

FROM TERMINATION OF PREVIOUS LIST TO FEB. 18.

John Beattie, of Liverpool, England, for improvement in means for supporting the propeller shaft, and receiving the rudder of steam propellers. Patented in England, Sept. 5, 1850.

Wm. H. Brown, of Worcester, for variable dia for dividing engines.

Jos. S. Brown, of Lowell, for improvement in extension railroad car.

Sam'l J. Chapman, of Charlestown, for machine for feeding sheets of paper to printing presses.

Jos. Cheever, of Boston, for improvement in apparatus for curing varicocele, sterility, impotency, and other diseases of the genital organs.

H. M. Clark, of New-Britain, Conn., for improvement in machines for heading bolts.

Hesekiah Crout, of Baltimore, for improvement in removable flank bar for securing the glasses of lanters.

Elisha H. Gollier, of Scituate, for improvement in heading spikes.

John P. Philo and Geo. Cowing, of Seneca Falls, N.Y., for improved method of operating fire-engine.

O. J. Cowperthwaite, of Philadelphia, for improved hydrant.

Charles A. Cumming and Cortland Douglass, of New-London, Conn., for improvement in gas burners.

Demit C. Cummings, of Fulton, N. Y., for improvement in lock gate valves.

Edw. A. Curley, of Westport, Conn., for improvement in extension tables.

Henry D. P. Cunningham, of Bury Hants, England, for improvement in reefing sails. Patented in England, Nov. 30, 1850.

Joseph C. Day, of Hackettstown, N. J., for improvement in fire-arms.

Allen Green, of Providence, for improved mode of attaching thills to axles.

W. W. Harvy, of Saltville., Va., for improvement in implements for pruning trees.

Caleb S. Hunt, of Bridgewater, Mass, for improvement in cotton press.

Frank G. Johnson, of Brooklyn, for improved method of regulating speed of windmills.

Richard W. Jones, of Green Castle, Ind., for improvement in brick machines.

A. Kendall, of Cleveland, for shingle machine.

Wm. F. Ketchum, of Buffalo, for improvement in grain and grass harvesters.

Sam'l M. King, of Lancaster, Pa., for shingle machine.

Wm. R. Lavender and Atkins Smith, of Provincetown, Mass., for improved steering wheel stopper.

J. A. Merriman, of Hindsdale, Mass., for mortising machine.

F. H. Moore, of Boston, for improvement in safety coal hole covers.

James McNabb and Adam Carr, of New-York, for improvement in steam stop-valves.

R. D. Nesmith, of Lake Village, N. H., for improvement in machines for dressing mill-stones.

Ephraim Parker, of Burlington, Iowa, for machine for making clothes pins.

Ira S. Parker, of Sharon, Vt., for improvement in washing boards.

Reed Peck, of Cortlandville, N. Y., for improvement in door-fastenings.

Charles Perley, of New-York, for improvement in cargo ports for ships and other vessels.

Abiel Pevey, of Lowell, Mass., for improvement in remelting iron scraps.

Ezra Ripley, of Troy, improvement in casting metals.

Samuel T. Sharp, of Danville, Mo., for improvement in straw cutter.

Thomas J. Stratton, of Waterloo, N. Y., for improvement in ditching machines.

Eben T. Starr, of New-York, for improvement in revolving fire-arms.

Francis M. Strong and Thomas Ross, of Vergennes, for improvement in platform scales.

Abner J. Sutherland, of Lowell, for improvement in yarn dressing frames.

James S. Taylor, of Danbury, for improvement in machinery for felting hats.

Joseph H. Tompkins, of Buffalo, for improved box for coating daguerreotype plates.

Lewis White, of Hartford, for improvement in curtain fixtures.

Hugh Wightman and Wm. Warden, of Alleghany, for improvement in oscillating engines.

Charles H. Brown and Charles Burleigh, of Fitchburgh, Mass., assignors to the Putnam Machine Company, of same place, for improvement in means for regulating and working steam-valves as cut-offs.

John L. Brown, of Indianapolis, assignor to himself and Chas. Learned, of same place, for lath machine.

Gelston Sanford, and Thomas and Stephen Hull, of Poughkeepsie, for improvement in grain and grass harvesters.

David Marsh, of Bridgeport, assignor to Thomas B. Stout, of New-Jersey, Joseph A. Cody, of Ohio, and David Marsh, of Conn., for improvement in hanging mill-stones.

Ari and Asabel Davis, of Lowell, and Charles Cunningham, of Nashua, assignor to Alfred W. Adams, of Lowell, Josiah B. Richardson, and Geo. W. Pettes, of Boston, and Sherburne T. Sanborn, of Winchester, Mass., for improvement in hydro-carbon vapor apparatus.

Benj. F. Avery, of Louisville, Ky. for machine for bending plow handles, &c.

J. A. Ayres, of Hartford, Conn., for method of opening and closing farm gates.

Thos. Crane, of Fort Atkinson, Wis., for improvement in flouring mills.

Wm. W. Hubbell, of Philadelphia, Pa., for improvement in eccentric explosive shells.

John M. Jones, of Palmyra, N. Y., assignor to Newton Foster, of same place, for improvement in cotton seed planters.

David H. Kennedy, of Reading, Pa., for improvement in the arrangement of tan vats.

Jos. W. Killam, of East Wilton, N. H., for machine for dressing sticks to polygnal forms.

Emmons Manley, of Marion, N. Y., for improved riveting machine.

Jos. S. Manning, of Philadelphia, Pa., for improvement in mowing machines.

Wm. H. Medcalfe, of Baltimore, Md., for method of ventilating railroad cars.

Jean Pierre Molliere, of Lyons, France, for improvement in machines for hammering leather for the soles and heels of boots and shoes. Patented in France, July 22, 1856.

John J. Osborn, of New-Orleans, La., for improvement in grate bars.

Francis Peabody, of Salem, Mass., for improved method of regulating velocity of wind wheels.

Freeman Plummer, of Manchester, Ind., for improvement in seed planters.

James P. Ross, of Lewisburg, Pa., for improvement in means for operating the steam valves in blower engines.

Chas. Schmidt, of Union, Mo., for improved method of boxing carriage wheels.

Horace Smith, of Norwich, Conn., and Daniel B. Wesson, of New-Haven, Conn., assignors to "The Volcanic Repeating Arms Company," of New-Haven, Conn., for improved primes for cartridges of fire-arms.

John H. Manny, of Rockford, Ill., for improvement in grain and grass harvesters.

John H. Manny, of Rockford, Ill., for improvement in harvester cutter bars.

Adolph C. Moestue, of Kane County, Ill., for improvement in mastic for covering walls.

Lucius Page, of Cavendish, Vt., for improvement in grinding mills.

Jos. N. Pitts, of Blackstone, Mass., for improvement in machines for cutting flocks and paper stock.

Rufus Porter, of Washington, D. C., for improved punching machines.

Geo. M. Ramsay, of New-York, N. Y., for improved hinge.

H. G. Robertson, of Greenville, Tenn., for improvement in bee hives.

Riley Root & Samuel G. Holyoke, of Galesburg, Ill., for improvement in machines for clearing snow from railroad tracks.

Henry F. Shaw, of South Boston, Mass., for improvement in screw-jacks.

Charles F. Thomas, of Taunton, Mass., for im proved chimney cowls.

Philos B. Tyler, of Springfield, Mass., for improved method of attaching teeth to saw plates.

Elbridge Webber, of Gardiner, Me., for improved device in tree-nail machines.

Thos. Winans, of Baltimore, Md., for improvement in buggy wagons.

Geo. D. Yong, of Plymouth, Mass., for improvement in belt and band fastenings.

Daniel Dod, of Brooklyn, N. Y., assignor to himself and Henry F. Read, of same place, for improved soldering iron.

Horace L. Houghton, of Springfield, Vt., assignor to Abel H. Grennell, of same place, for improvement in machines for cutting mouldings on marble.

Edward Kershaw, of Boston, Mass., assignor to himself and Henry M. Hooper & Co., of same place, for improved cell lock.

Jos. Weis, of Bordentown, N. J., for improvement in flouring mills.

Albert Bisbee, of Chelsea, Mass., for improvement in means for operating the throttle valve of steam engines.

Jos. T. Capewell, of Woodbury, Conn., for improvement in shot pouches.

Thomas J. Carleton and Stephen Post, of York, O., for improved field fences.

Geo. R. Comstock, of Manheim, N. Y., for improvment in locomotive furnace grates.

Henry N. Degraw, of Piermont, N. Y., for improvement in machine replacing railroad cars.

Louis T. Delassize, of New-Orleans, La., for improvement in brick machines.

Chas. Foster, of Philadelphia, Pa., for improvement in scaffolds.

Moses G. Farmer, of Salem, Mass., for improvement in telegraphic Registers.

Stephen J. Gold, of New-Haven, Conn., for improvement in apparatus for heating buildings by steam.

John Hinkley, of Huron, O., for improvement in universal joints for connecting shafts, &c.

Hazzard Knowles, of New-York, N. Y., for mortising tool.

Noah W. Kumber, of Cincinnati, O., for improvement in pill-making machines.

Charles H. Bush, of Fall River, Mass., for improvement in the bell stench trap.

Solomon Berheisel, of Tyrone Township, Pa., for improvement in corn dryers.

Wm. Ball, of Chicopee, Mass., for improved ore washer.

A. H. Caryl, of Sandusky, Ohio, for improved raking attachments to harvesters.

Levi Chapman, of New-York, N. Y., for improved photographic plate vise.

John Cook, of Westmoreland, N. Y., for improvement in lugs for cast iron shingles.

Edward N. Dickerson, of New-York, N. Y., and Elisha K. Root, of Hartford, Ct., for improvement in pumps.

Peter S. Elbert, of Chicago, Ill., for improvement in heating-feed-water apparatus for locomotives.

John G. Ernst, of York, Pa., for improved saw set.

Major H. Fisher, of Sing Sing, N. Y., assignor to Jos. A. Hyds, of Bridgewater, Mass., for improvement in cutting files.

Elisha S. French, of Binghamton, N. Y., for improvement in three-wheeled vehicles.

Thomas Frith, of Cincinnati, O., for improved feed-water apparatus to steam boilers.

Samuel Gissinger, of Alleghany, Pa., for improved bench vise.

Elisha Harris, of Providence, R. I., for improvement in machines for bending ship hooks.

Oliver S. Hasard and Isaac Peck, of Coventry, R. I., for improvement in machinery for making rope.

Harvy J. Hughes, of Davenport, Iowa, for improvement in brick presses.

Samuel McFerran, of Philadelphia, Pa., for improvement in hot-air furnaces.

Richard Montgomery, of New-York, N. Y., for improvement in carriage springs.

S. S. Mills & M. Bissell, of Charleston, S. C., for improvement in weighing scales.

Stephen C. Mendenhall, of Richmond, Ind., for improvement in flour bolts.

Geo. R. Moore, of Mount Joy, Pa., for improvement in fire-pokers.

Francis Morandt, of Boston, Mass., for improvement in lanterns.

Sam'l Peck, of New-Haven, Conn., for improved fastenings for the hinges of daguerreotype cases.

Myer Phineas, of New-York, N. Y., for improved metallic pen.

Juan Pattison, of Brooklyn, N. Y., for improvement in oscillating steam engines.

B. F. Ray, of Baltimore, Md., for improvement in harvesters.

John S. Snyder, of Lancaster, O., for improvement in saw mills.

Alfred Swingle, of Boston, Mass., assigner to Elmer Towsend, of same place, for improvement in sewing machines.

Harriet V. Terry, of Boston, Mass., administatrix, of Wm. D Terry, dec'd, for improved mode of constructing cast iron buildings.

S. J. Frask, of Guilford Centre, N. Y., for improved alarm clock.

Otis Tufts, of Boston, Mass., for improvement in making wrought iron shafts.

John B. Wentworth, of Lynn, Mass., for improvement in machines for softening leather.

Abner Whitly, of Springfield, O., for improvement in grain and grass harvesters.

Abner Whitly, of Springfield, O., for improvement in belt fastenings.

John Standing, of Fall River, Mass., assignor to himself and James Baxendale, of Providence, R. I., for improved movement for the doctors of calico printing machines.

Chas. C. Terrell, of Shullsburgh, Wis., assignor nor to himself and Samuel Crawford, of Mineral Point, Wis., for improvement in many-chambered breech loading cannon.

John M. Wimley, of Philadelphia, Pa., assignor to himself and Washington H. Penrose, of same place, for improvement in the mode of attaching composition soles to boots and shoes.

Wm. Adamson, of Philadelphia County, Pa., for improvement in machinery for cutting sand paper. Ante-dated Aug. 12, 1855.

John Allender, of New-London, Conn., for improvement in scissors.

B. J. Barber, of Ballston Spa, N. Y., for improved method of tonguing and grooving tapering boards.

Wm. Baxter, of Newark, N. J., for improved wrench.

Erastus B Bigelow, of Boston Mass., for improvement in power looms.

Felix Brown and Adolph Brown, of New-York, N. Y., machine for boring and tenoning wood.

John Clark, of Washington, D. C., and G. W. N. Yost, of Pittsburg, Pa., for improvement in ploughs.

Chas. W. Copeland, of New-York, N. Y., for improvement in valve and exhaust passages of steam engines.

Waldo P. Craig and Wm. R. Rightor, of Newport, Ky., for improvement in signals for vessels.

Clement Dare, of Cincinnati, Ohio, for improved method of regulating feed gates for mills, etc.

C. H. Denison, of Green River, Vt., for rotary planer for felloes.

Levi S. Enos, of Olean, N. Y., for improvement in oil cans.

Wm. E. Everett and M. M. Thompson, of New-York, N. Y., for improvement in devices for removing incrustations of boilers.

David N. Flanders, of South Royalton, Vt., for improved adjustable carriage seat.

P. G. Gardiner, of New-York, N. Y., for improvement in railroad car-axle.

John S. Gallaher, jr., of Washington, D. C., for improvement in gas and steam cooking apparatus.

Thaddeus Fowler, of Waterbury, Conn., for improvement in sticking pins in paper.

Robt. & Wm. L. Gebby, of New-Richland, O., for improvement in seed planters.

Wm. Gee, of New-York, N. Y., for lubricator.

Elijah Hall, of Rochester, N. Y., for improvement in power looms.

Anson Hatch, of Forestville, Conn., for improved hand press for stamping letters, &c.

Birdsill Holly, of Seneca Falls, N. Y., for improvement in steam engines, which are used for pumping.

J. L. Horn, of Edgecombe County, N. C., for improvement in cotton seed planters.

Westel W. Hurlbut, of Utica, N. Y., for improved method of hanging and adjusting circular saws.

Solon S. Jackman, of Lock Haven, Pa., for improved elevator for puddlers balls.

Ferdinand Keehnold, of Bridgeport, Conn., for improved wrench.

James T. King, of New-York, N. Y., for improvement in steam condensers.

R. W. Lewis, of Honesdale, Pa., for improvement in sealing preserve cans.

Edward Lindner and Conrad Hoffman, of New-York, N. Y., for improvement in porte-monnaies.

John L. McPherson, of New-Vienna, O., and Jacob O. Joyce, of Cincinnati, O., for improvement in diaphragm pumps.

Christopher Moeller, of Newark, N. J., for improvement in wick holders for Argand lamps.

Elisha P. Newton, of *Green Island*, N. Y., for improved wrench.

Job Phillips, of *Harrisburgh, Pa., for improvement* in grain harvesters.

John Prime, of Washington, D. *C., for improvement* in ship compasses.

Lea Pusy, of Philadelphia, Pa., for improved method of extinguishing fires.

Wm. H. Robertson and George W. Simpson, of Hartford Conn., for improvement in breech-loading fire-arms.

Chas. H. Sayre, and George Klinch, of Utica, N. Y., for improvement in cultivator teeth.

John Seithen, of Coblens, Prussia, for improved envelopes for bottles. Patented in England, August 29, 1854.

Edwin F. Schoenberger, of Marietta, Pa., for improvement in fluxing blast furnaces.

Timothy F. Taft, of Fitchburg, Mass., for improved bolt machine.

Benj. Taylor, of Philadelphia, Pa., for instrument for grating green corn.

Thos. Thompson, of Nickersville, N. Y., for improved machine for folding paper, &c.

Wm. D. Titus, of Brooklyn, N. Y., for improvement in oil box for axles with conical journals.

Wm. H. Powers, of Philadelphia, Pa., for improvement in clothes clamps.

Loison D. Towne, of Worcester, Mass., for cutter heads for planing machines.

James Whitcom, of Detroit, Mich., for improvement in railroad switch.

S. W. Wood, of Washington, D. C., for improvement in railroad car coupling.

Geo. W. N. Yost, of Pittsburgh, Pa., for improvement in grain and grass harvesters.

C. C. Hoff, of Albany, N. Y., assignor to E. P. Russell, of Manlius, N. Y., for improvement in the construction of mastic roofing.

James M. Kern, of Morgantown, Va., assignor to Enoch P. Fitch and Isaac Scott, of same place, for improved method of concaving circular saws.

Alfred Swingle, of Boston, Mass., assigner to Elmer Townsend, of same place, for improvement in pegging boots.

Chas. Morgan, of Philadelphia, Pa., assigner to Sam'l Emlen, of same place, for improvement in potato planters.

Henry Newsham, of Baltimore, Md., for improvement in caldrons.

Presented by J. G. Putnam

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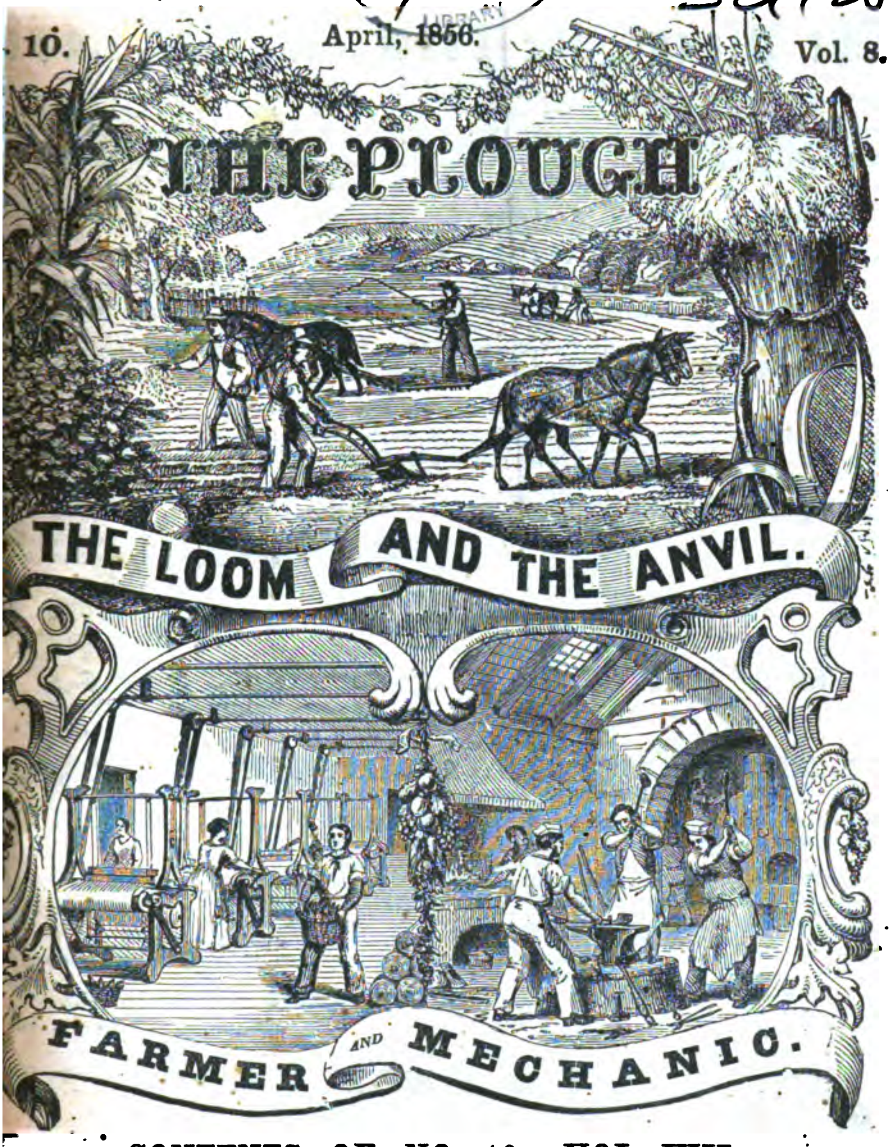

THE PLOUGH THE LOOM AND THE ANVIL.

FARMER AND MECHANIC.

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PUBLISHED AT NO. 9 SPRUCE ST., NEW-YORK.

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to the THE PLOUGH, THE LOOM, AND THE ANVIL, No. 9 Spruce St., New-York

☞ The Office of "The Plough, the Loom, and the Anvil," will be removed May 1st, to Nassau Bank Building, corner of Beekman and Nassau Streets.

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POQUETANNOCK, Conn., Feb. 9, 1855.

"This is to certify that I have been using Hurd's Hair Restorer about three months, and now, where my head was bald, it is covered with a new growth of hair."
Capt. GEO. G. I   MINS.

POQUETANNOCK, Conn., ----   1855.

"This is to certify that I have been using Hurd's Hair Restorer about three months, and where my head was entirely bald, and had been about twenty years, it is covered with a new growth of hair, at least three   ches in length."
ALICE A   AMS.

The *Petersburgh (Va.) Intelligencer* says of HURD'S HAIR RESTORER: "This preparation seems   ) be efficacious for the restoration of the hair upon bald heads. We have seen the testimony of persons we'   1 to us, who have used the compound successfully, thereby corroborating the opinion of its restorative ener

For a Superior Article for the Toilet use HURD'S GOLDEN GLOSS

This preparation is highly perfumed, and gives to the hair a dark, soft, glossy, and lively appe   ich can not be obtained from any other article. It effectually cleanses the scalp, and keeps the head clean and t   y.
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CHEMICAL MANUFACTURING CO., Pr
293 Broadway, N   ork.

1863, July 8.

The Plough, the Loom, and the Anvil.

VOL. VIII. APRIL, 1856. No. 10.

INFLUENCE OF VARIETY OF PURSUITS,

IN PRODUCING INTELLECTUAL AND INDUSTRIAL ACTIVITY THROUGH A COMMUNITY.

TRUTH is self-sustaining. Separate truths mutually confirm each other. Correct theories and sound principles commend themselves by the benefits which they confer through their indirect and incidental connections. Thus each demonstrates its own excellence.

The policy which we advocate in reference to variety of pursuits commends itself, because it bears the test we have just described. It exerts a happy influence in promoting a general industry, and in a higher development of the popular intellect.

We are quite too far into the nineteenth century to bear patiently the imported idea, not yet quite obsolete, that the masses are not made to think, or even to rule. As long as the memory of a Webster, a Clay, a Franklin, a Jackson, a Zachary Taylor, and scores of others, whose very names, now that their bodies are buried in the dust, are more honored and more beloved, and exert a higher influence than scores even of living public men, aspiring to be leaders in our republic, so long it will be demonstrated that from the people—from the common walks of industry, must come, as they have hitherto, the most beloved and honored, the best, the strongest, the weightiest intellects, the most controlling influence of the country. Whatever, therefore, tends to favorable results in that direction is not only commendable, but of the highest importance.

The Church has produced as many examples of this sort as the State. Henry Martyn was the son of a collier, John Newton was a sailor, Melancthon was educated as a mechanic, and Bunyan served as a tinker and a common soldier. In our own country almost all our eminent clergymen have risen from the ranks of the comparatively poor. Nor is this all. The few very rich men have nearly all commenced without any capital. Several have first entered the city where they triumphed over the most discouraging outward circumstances, with all their possessions in the bundle which was hung at their back.

It is true, in one sense, that agriculture is established by our Creator, as man's first and highest work, and that all other forms of industry are to be regarded only as its handmaids. But this is true only in a single and limited sense. If the art of agriculture is neglected, and the annual harvest is not gathered, man must starve. Animal life, in many regions of the globe, must become extinct. This thought was most eloquently presented by

Mr. Everett in his speech at the banquet in Boston, as reported in a recent number of this journal. This work is therefore indispensable.

"In the morning sow thy seed and in the evening withhold not thy hand," is not an arbitrary decree, but the fundamental law of life. If essentially violated, famine will consume our very being. This, then, is, in one sense, our first duty.

But it is equally true that if men do not build for themselves habitations and contrive other means of defense against the elements, they must perish. So these too appear as primary duties, and architecture and other arts also, rise, like agriculture, by parity of reasoning, to the dignity of "divine institutions."

A careful view of the subject will prove that in countries where the whole of man's work is merely or chiefly the tilling of the soil, there will be, comparatively, but little physical or mental activity among the masses of the people. We have recently been reminded that "comparisons are odious," but we scarcely know how to urge any sort of progress or of reform without this kind of illustration. We therefore beg our reader's candid judgment, while he follows us, for a few moments only, in the examination of this matter. If he will then give us his ideas of it, either in *confirmation or negation*, we will furnish him as extensive a platform *on which to exhibit* his views as our pages can furnish.

We shall find that in communities engaged in a variety of *industrial pursuits*, mere manual labor is performed with more energy; that more physical activity is there put forth, than in those where agriculture is the sole occupation of the people. If our readers are familiar with the habits of our border settlements, as one region after another comes under the dominion of the hardy pioneer, they know that as soon as the land is once subdued and prepared for cultivation, only a portion of the time is occupied in any kind of labor. Three days's work in the week will usually furnish all that is necessary for domestic uses, and no motive urges them to more constant occupation. As we recede from the outer limits of civilization, toward the older settlements, a greater variety of crops is produced, flowers and shrubbery, and fruits, etc., begin to receive more careful and more extensive culture, and various additional inducements are presented for new forms of labor. As population becomes more dense, and new trades and professions occupy attention, markets spring up, consumers multiply, and everything conspires to induce habits of increased industry.

Look at the condition of other and older countries, and they too bear us out in asserting that physical energy and activity is displayed in the highest degree wherever the various trades and manufactures are liberally sustained. The examples to which we have referred, be it remembered, are not of those who are indolent because they are laboring for the benefit of another, without reward, or for half pay, or because the same award is given them whether they are industrious or not, but of men working their own soil, for their own advantage, and precisely according to the dictates of their own free will.

The *ingenuity* of men is more effectually called into action in communities engaged in a variety of pursuits. Under such circumstances it becomes important to do everything under the most favorable circumstances. Each man is anxious to avail himself of every new facility for carrying on his own craft. Every ingenious man may devote himself to the invention of new contrivances, under the assurance that every valuable thought he shall evolve will pay liberally for the time he may devote to it.

Facts easily determined leave no room for doubt on this point. The number of patented inventions in these *industrial* communities, (we use this term for its conciseness,) is vastly greater than in those where all are occupied in agriculture, while the number of those not patented, but which are originated, often by more than one, without any knowledge that the same thought has been suggested by others, greatly exceeds the number of patents actually issued. Probably the number of these non-patented contrivances of useful mechanical combinations greatly exceeds the number of those patented, and the excess of those non-patented in industrial communities over the same class of inventions among agriculturists, is still greater than that of inventions which are secured by law. Our own country does not furnish the only evidence of this sort. What is true here is true over all the world.

A modified form of this statement is equally certain, to wit: There is more general intellectual activity in these industrial communities than elsewhere. The mechanical inventions to which we have referred present but a partial view of the general action of the popular mind, but it is scarcely possible that such vigor and efficiency should be unaccompanied with a general activity of mind, habituated to careful analysis, and possessing a wholesome constitution.

Nor are these activities concerned only with industrial topics. How often do we see such a people manifesting a deep interest in general education, or even in liberal sciences? Sometimes, indeed, they become enthusiastic in the pursuit of some theory or abstraction, or of some fancied good. Nor is our inference drawn from these facts to be set down as unworthy of consideration, because such developments are sometimes foolish and positively harmful. No community of vigorous, but depraved mind, and especially if imperfectly educated, can fail to evolve monstrous errors. As well might a steam engine be expected to exert its tremendous power only for useful purposes, avoiding collisions and saving the lives and limbs of those who fall under its wheels. As well may a forge or furnace keep itself clear of smut and smoke. Our manufacturing machinery, *when in action*, sometimes proves destructive to the lives and limbs of operatives. It is indeed quite harmless when at rest. Nevertheless life is better than death, and occasional discords to universal deafness or perpetual silence. It is desirable that chemical agencies should exert their attractions and repulsions, though they do sometimes result in offensive decompositions. Valuable results are usually achieved at a great expense. This is equally true in morals and in physics.

We do not intend to assert that the general average of intellectual endowment, in any community, is graduated by the amount of physical machinery it employs, or that the highest intellects are confined within certain industrial boundaries. But we do maintain that under the circumstances described, the mass of mind is not called into action. It lies dormant and becomes inefficient and useless to itself and to others. Motives to effort are not presented to them, or when presented are either unheeded or result only in fitful efforts. Where the circumstances of a people are opposite to these, where the rivalries and strifes of commercial and trading industry are in their flood tide, there we always find intellectual energy to meet the demand. In every large community an opportunity is constantly afforded for the exercise of talent and skill in the learned professions, and hence we find a much greater uniformity in the endowments and capacities of men of these classes, in all communities, than we do in the condition of the people whom they serve. The tastes and prejudices of a people exert no little influence upon the peculiar mental characteristics and the amount of acquirements among professional men, but there is far less diversity arising from these causes in these professions than is displayed in other more private stations.

Where the mental powers of the masses are not habitually called into action, the few control the many. All public measures are originated and carried through, not by the people, nor at their bidding. So all improvements, as the construction of railroads and the like, are first suggested, planned, and executed by the few educated and perhaps professional men, who are regarded and who regard themselves, as in some sense, the guardians of the people, the patrons and guides of the many. The latter are the pupils, they are their instructors.

These thoughts lead to an inquiry on a kindred topic. Among what communities do we find the greatest number of learned authors and ablewriters rising up from all classes and from every kind of pursuit? Where the most numerous readers? Where the most enterprising tradesmen? Where the most efficient craftsmen? Evidently, where active competition and diversity of occupation call forth the energies of the common *mind*, *leading* to the exercise of vigorous thought, and diligent study, *and resulting* in a spirit of self-reliance, and an appreciation of beauty and *excellence in* conception and ability in execution.

It does not follow from this reasoning, that agricultural districts are *always* and of necessity inferior in mental vigor to those communities *which are* engaged in the mechanic arts and manufactures and the various trades. Often they are not so far separated from the workshops or manufactories as not to be materially affected by them. They are indeed little less than the outer covering of the Leyden jar, while those other departments of industry form the inner coat. These intelligent yeomen do not confine their thoughts nor their sympathies with the boundaries of their own broad acres. Not a day passes that they do not look out upon the busy world and listen to the tidings which are brought from it as they would listen to a message from absent friends. The newspaper is valued by them next to their Bibles. They identify their own interests with these distant movements. That they may have the most recent intelligence of important changes, the most speedy conveyances are brought into requisition. The electric wire connects them at once with the busiest scenes and most exciting conflicts of the great world. The two sides of the jar are in frequent connection. The passion of one section is mingled constantly with the more quiet thoughtful habits of the other. But a mere agricultural community, scattered sparsely over wide territories could never impress upon distant places such deep and earnest convictions, nor such intense sympathies, by their own peculiar agencies. Such a thing has never been known, unless under the most peculiar circumstances. The well deserved reputation of many rural districts in our country, the like of which is not seen elsewhere, for sound judgment, strong common sense, and ardent patriotism, are no doubt, to a great extent, the peculiar products of our own revolution, or of the influence of those matchless minds which then and for years after gave a tone to the tastes and the habits of the people. The stirring scenes of the present day, with which all these men are as familiar as they are with the transactions of their own families, have also a prevailing and controlling effect in perpetuating or modifying these habits and characteristics, as their sympathies are associated with one or another of the prominent doctrines and theories of the day.

But we need not extend this discussion. We do not see how any one can doubt that a variety of industrial occupations tends to develop the popular mind

And if the power of combination, and of invention, and of skillful analysis, of quick conception, nice perception, logical deduction, and kindred processes, are of vital importance to a people who essentially control their own destinies, the conclusion is unavoidable, that mechanical and manufacturing interests ought to be carefully protected wherever republican principles are to prevail, or democratic institutions permanently established.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

METEOROLOGICAL.

NEAR BROWNSBURG, Rockbridge County, Va.
26th February, 1856.

GENTLEMEN :—Your February number of the P. L. & A., reached me on the 18th inst. The January number did not come to hand. Please send it.

There are one or two slight typographical errors in my article of the 25th December. Second paragraph, 10th line, for corned meat, read meat, and for money read many; and 8th paragraph, 7th line, for feet read *yards*.

Since last writing you, we have had quite a Northern winter, such a one as is rarely experienced in this latitude. Indeed I may with propriety say, we have not had such continuous cold weather for 30 years. We have done nothing since the holidays but cut wood and feed the stock; and I learn by a letter just received that the James River is yet frozen up at Richmond, on the 23d. Since that day, however, the weather has been more mild, and I suppose the ice has given way by this time, as the snow has gone pretty much from the south sides, so as to give us a rise in the river without a flood. The nights freezing slightly. If our snow had gone off with a warm rain, immense damage would have been done, and we are not yet entirely out of danger, as there is much snow still in the mountains and on the north sides of the hills.

The wheat, where the snow is off, looks well. There was much seed sown last fall, and, should the season prove favorable, a large harvest may be expected. The spring frosts, and the insect tribe may yet do us much injury.

There has been less out-door work done this winter than I have ever known, and there was very little land ploughed last fall; as a consequence we will be backward this spring. The weather was too cold to make rails or fence, and this work will have to be done when we should be ploughing. From our fine crops of corn last year, our stock has been well kept, our teams will be in good order, and when the spring fairly opens we can push ahead.

For two months we have had clean nice feeding. I have never had my milch cows and stock cattle winter better. But with beef cattle, where not housed, they have not fattened as well as if the winter had been warmer. There is a good stock of beef cattle on hand, and prices have been rather depressed. Feeders not getting more than paid for their corn at 50 cents per bushel, at which corn is selling in my neighborhood.

Pork was scarce last fall, and sold at $7 to $8, and is now worth at Richmond $9. Beef commands from $6 to $10, as in quality. But little real fine beef to be had.

Annexed I send you the state of the weather for the last two months, and I hope after a while to find leisure to write you more at length.

Date.	Mercury.	Weather.
Dec. 26, 1855,	16 deg.	Wind high and from North.
" 27, "	15 "	
" 28, "	28 "	
" 29, "	29 "	Cloudy, sleet and rain.
" 30, "	27 "	Wind clouds.
" 31, "	20 "	Hazy.
Jan. 1, 1856,	22 "	"
" 2, "	27 "	Cloudy.
" 3, "	35 "	Rain and sleet.
" 4, "	20 "	
" 5, "	18 "	Snowing, wind North.
" 6, "	10 "	
" 7, "	10 "	
" 8, "	22 "	Clear.
" 9, "	0 " rose to 16°	
" 10, "	2 " below Zero.	
" 11, "	2 " above "	Wind North.
" 12, "	24 "	Stormy day, snow.
" 13, "	30 "	
" 14, "	25 "	
" 15, "	25 "	
" 16, "	24 "	
" 17, "	24 "	Bright day.
" 18, "	31 "	
" 19, "	33 "	
" 20, "	24 "	Snow storm, wind East by North.
" 21, "	14 "	
" 22, "	14 "	Clear.
" 23, "	15 "	"
" 24, "	12 "	"
" 25, "	15 "	"
" 26, "	10 "	
" 27, "	18 "	Snow storm, wind North.
" 28, "	27 "	Cloudy.
" 29, "	28 "	"
" 30, "	27 "	"
" 31, "	22 "	"
Feb. 1, "	34 "	Wind West.
" 2, "	28 "	" " high.
" 3, "	18 "	Cold, windy night.
" 4, "	2 " bel. Z., rose to 14°	
" 5, "	3 " above Zero.	
" 6, "	18 "	Hazy.
" 7, "	34 "	Snow.
" 8, "	37 "	Sleet.
" 9, "	30 "	Windy.
" 10, "	24 "	
" 11, "	26 "	Clear, high wind.
" 12, "	36 "	High wind, North-west.
" 13, "	16 "	Snow.
" 14, "	3 " below Zero.	
" 15, "	18 " above "	Snow.
" 16, "	33 "	
" 17, "	13 "	Very windy.
" 18, "	25 "	
" 19, "	15 "	Clear.
" 20, "	30 "	Cloudy.
" 21, "	26 "	Clear.
" 22, "	25 "	" Wind North-west.
" 23, "	39 "	" " "
" 24, "	32 "	" " "
" 25, "	36 "	" " "
" 26, "	33 "	" " "
" 27, "	35 "	Snow and rain.

I would remark that for near two months the mercury rarely rose to 40 degrees, with generally cold North-west or North-east winds, blowing almost a hurricane at times. I often thought of the poor weather-beaten mariner, who must have suffered intensely, and I fear this branch of trade has been sadly disastrous.

Your ob'd'nt servant,

FEB. 26, 1856. HENRY B. JONES.

SPEECH OF MR. McMICHAEL.

[WE are happy to give even a tardy report of the beautiful speech of Mr. McMichael at the recent agricultural banquet in Boston. It does honor to the editorial corps of which he is a member, and to the city which he has chosen as the place of his residence.—ED. P. L. A.]

MR. PRESIDENT:—From the land of the Quaker to the land of the Puritan —from the city where our National Independence was first proclaimed, to the city where its first great labor was performed—we, who have just been honored by the toast you have proposed, may come, not as once we might have come, in awe of brandings, and stripes, and imprisonment, nor as again we might have come, burdened with the weight of a gloomy foreboding, to share in the perils of a doubtful conflict. No sir. Happier in this than our forefathers, whether of the earlier or later time, we have come, assured of hospitable welcome and bounteous entertainment, to witness the generous rivalries of friendly contestants, and to mingle in the rejoicings which properly belong to the triumphs of peace.

And sir, we feel that it is good for us to be here—we feel, now that the bitterness of intolerance, as between you and us, has forever ceased, now that the trials and dangers of revolutionary struggles for you and for us are forever over, recalling, as we may, with a smile, the follies of the fanaticism by which we were separated, remembering, as we must, with a sigh, the trials of the patriotism by which we were united—that it is good for us, men of Pennsylvania to be here with you, men of Massachusetts; to engage with you in a common effort to promote an important interest of our common country; to admire with you the rapid development of that interest; to exult with you over the unexampled prosperity of that country.

Missionaries from our heaped-up granaries, from our prolific mines, from our teeming furnaces, we have entered your industrial establishments—those great reservoirs of life, and of motion in its seeming intelligence resembling life—and having seen with our own eyes and measured with our own judgments the men and the means, that by consuming our grain and our coal and our iron, and replacing them with fabrics that supply the staple of a busy commerce, have made our interests and yours complete and identical, we are ready to cry "Woe, woe, woe," unto him that would sever us. Bound together as we are, it was not possible we could meet as strangers, but you have received us as favored brethren; and in behalf of my colleagues, and in the name of those we represent, I cordially thank you; I thank you for the courtesy which has been extended to us; I thank you for the privilege we have enjoyed of being partakers at the same time, of your pleasing duties and your grateful cheer; I thank you for the opportunity you have furnished of joining our hands and our hearts and our voices with yours, in the fulfillment of mutial service, in the recognition of mutial kindness, in the utterance of sentiment of mutual good-will.

Mr. President:—As I looked, yesterday on the gratifing exhibition made among the triple hills of your beautiful Boston, like his Excellency, the Governor, I too was reminded of those ancient days, when from all the isles of Greece, the people gathered to a periodical festival, foremost among whose attractions were the achievements of the race-course and the ring. It is true, sir, contrasting the present with the past, that in your curriculum no gaudy and glittering chariots, urged by filleted tyrants, have flashed their useless splendor in our eyes; but in their stead you have shown us troops of gallent steeds, stronger of sinew, fleeter of foot, and lither of limb than ever champed a bit or struck a hoof in Elian circle; and backed by hard-handed men who live in the daily practice of a liberty beyond any of which the Greek had ever dreamed.

It is true, sir, that within your enclosures no naked wrestlers or sturdy athletes have tortured their supple joints in degrading *encounters*; but better far than these, you have set before us whole droves *of cattle preëminently* fitted for the dairy, the shambles, or the yoke; whole flocks *of sheep*, rich in the wool that gives activity to our looms, and the flesh that *ministers to* the healthy, and tempts even the sated appetite; whole droves *of swine*, suggestive of that abundance which, out of our surplus, enables us *to feed the* hungry of the earth; and all these you have presented so cared for and provided, so pampered and fattened, that, while on the one hand you have avoided whatever might lower the condition of man, on the other, for his use, and convenience, and enjoyment, you have elevated the condition of the brute.

And, Mr. President, if in all things else this anniversary celebration of the United States Agricultural Society had fallen short of the far-famed games of old; if, sir, instead of surpassing them, as it has, in all the manifestations of material superiority connected with the multiplication of human comforts, it had failed to match their meanest efforts; if, instead of the unassailable demonstration of progress which every incident of the display has contributed to strengthen, there had been equally unmistakable proofs of stagnation and retrogression; there is one thing in which it has gone so immeasureably before them that for that and that alone, it would be a thousand-fold more entitled to our praise.

Mr. President, the Greek, with all his elegance and refinement, with all his philosophy and learning, with all his exquisite appreciation of poetry, and music, and painting, and sculpture, and statuary, had no adequate conception of the true value and just position of woman, and admitted her to no participation, unless in exceptional cases, in his higher pursuits and graver occupations. As part of his general system, she was prohibited, on pain of death, from being present at the ceremonies of the sacred island; and the reservation in favor of the free love priestesses of Ceres only attested more significantly the dishonoring character of the exclusion.

You, sir, have been guided by a wiser and better spirit, and recognizing that social equality of the sexes which reason and revelation alike teach us, you have thrown your gates wide open to the maids and matrons of the community, you have given them due precedence as well in the spectacles as at the banquet; and in the bright, the thoughtful, the eloquent faces which turn towards me, I recognize visible tokens of the illimitable advance which our Christian has made over heathen civilization.

Mr. President: In the most glorious era of Greecian art under the administration of the manificent Pericles, the wealth and power of that accomplished statesman were directed to the construction of such works as, being immortal themselves, might confer immortality on their authors and projectors. First among these, as you well know, in grandeur, in beauty, in costliness, was the colossal statue of Jupiter by Phidias. Towering in its pride of place in the temple of Mount Olympus, gorgeous with gold and ivory, and all manner of precious stones, that transcendent result of genius drew to it all the visitors of the Olympic games, who offered their devotion rather to the spiritual presence of a divine art, than to the imaged incarnation of the potent Thunderer, who sat in cold and stately majesty before them.

Nearly fourteen centuries have rolled by since that statue—the faith it typified having long before perished—was buried beneath its own smouldering embers at Constantinople, then the brilliant seat of the Imperial Cæsars. And not alone have the faith and its emblem perished. The classis traveler gropes in vain among the obliterated landmarks of Antilla for traces of the Hippodrome, or vestige of the Prytaneum. Constantinople, smitten with the plague—a spot of corrupt religion, and emaciated by the long exhaustion of a feeble dynasty, writhes in the death-grasp of inevitable dissolution.

The Greek himself, his language and his morality alike enervated, resembles his fathers only in name. But, Mr. President, in a new land, under a new dispensation, and a new polity, professors of a purer creed, the possessors of a surer heritage, we have to-day commemorated a new Olympiad. From all parts of a republic, mightier in its infancy than Athens in its prime, there have crowded earnest candidates for the honors, valiant strugglers for the prizes you have had to bestow. Nor have the statue and the temple been wanting.

Beneath the dome of your capitol we have marked the placid dignity of our Pater Patria, whose deeds and whose virtues shall survive in the affections of distant generations, when the old mythology, father—god and all, with its vanities and vices, have sunk into utter oblivion. From the foot of a neighboring eminence, we have gazed on the simple column which crowns the spot consecrated by the blood of the first martyrs of American freedom—a column which, simple though it be, is dearer in the associations which cluster around it, than any hoary pile, no matter how venerable in its antiquity, nobler than any modern trophies,

"Built with the riches of a spoiled world."

And, Mr. President, whatever of pride the cultivated Greek may have felt in contemplating the master-piece of Grecian skill—whatever of reverence the pious Greek may have felt in contemplating the master-deity of the Grecian Pantheon—we who are here, whether from the north or the south, or the east or the west, have felt a loftier pride, a holier reverence than ever Olympian statue or Olympic temple inspired, as, filled with solemn memories of the past and jubilant hopes of the future, we have stood in the presence of the marbled form of our own Washington, or the granite monument that records the story of Bunker Hill.

At the close of the eloquent gentleman's remark, six hearty cheers were given, and at each allusion to him by subsequent speakers, the audience testified their appreciation of his eloquence and genius by hearty applause.

GEOLOGICAL SURVEY OF KENTUCKY—ITS MINERALS.

THE State Geologist of Kentucky, Mr. D. D. Owen, has published a synopsis of his report, from which we take the following valuable information:

As the Geological Report for 1854 and 1855 cannot appear before the adjournment of the legislature, I have been requested to prepare a synopsis of some of the principal results of the geological survey up to the present time, to set forth the objects to be obtained by its further prosecution, and lay before the members of the legislature some of the advantages which the Commonwealth of Kentucky must derive from developing its mineral resources, and publishing these to the world in the reports of the geological survey.

A reconnoisance has been made of sixty-three counties, *embracing* those of the Jackson purchase, most of the counties *lying between* Green and Tennessee rivers and the southern boundary of the *State*; *the* southeastern mountain counties; together with the counties bordering on *the Ohio* river below its falls; also the counties of Greenup, Lawrence, Carter, and *Lewis*.

The detailed geologico-topographical survey of Union county has *developed*, beyond all anticipation, the mineral resources of that county. In the lower 1000 feet of the coal measures of Union county, nine to ten workable beds of coal have been discovered, the thickness of which is over thirty feet, and capable of yielding under each acre of ground over 1,000,000 bushels of coal, after throwing off an ample allowance for waste and slack, worth more than $80,000 if all worked out; which, after deducting the expenses of mining and transportation to market, will yield a clear profit of $30,000.

Besides this, there are valuable beds of iron-stone associated with the coal, which, at a low estimate, will produce from every acre when smelted, 1350 tons, worth, at the lowest price, over $25,000.

Is it, then, to be wondered at that lands *now known* to be underlaid by these rich beds of coal and iron ore should have doubled their value since the commencement of the geological survey.

Kentucky is the only State that has within its limits *two* rich coal fields, occupying more than one-fourth the area of the State, with a depth of 25,000 to 35,000 feet, embracing at least eighteen workable beds; while the coal measures of Missouri, as reported by the geological survey of that State, are only 650 feet in thickness on the Missouri river, embracing two workable beds, as represented in the sections of the coal measures embraced in the report on that State just issued. The lower 1000 feet of the coal measures, over a very great area, will undoubtedly afford in many sections of the State valuable beds of iron-stones, which can be converted into iron at great profit.

Up to the present time the operations of the geological corps have been chiefly directed to develop the mineral resources of the State in coal and iron ore, as these are considered of the first importance.

A few facts in regard to the consumption, cost of production, and demand for iron, together with the profits that can be derived from its manufacture, will serve to exhibit the value of the raw material, and where it is situated so as to be mined with facility, and produce iron at a cheap rate.

	Tons.
The consumption of iron in the United States for 1853 was	1,200,000
Production,	800,000
Wastage,	100,000
Leaving to be imported,	500,000
This is mostly railroad iron, which costs—	
English manufacturers' cost per ton,	$42 00
Commission,	2 80
Government duties,	16 00
Freight,	8 00
Discount of bond,	4 00
	$72 80

This would take out of the country $36,500,000 per annum for an article which the United States, and especially the *Western States*, have the means of producing at one-half the cost, and which the manufacturer could afford to sell at $50 per ton at a profit of 30 to 40 per cent.

It can be demonstrated that in the Western States, where coal can be mined for $3 per 100 bushels, and ore for $1 50 per ton, that pig iron can be smelted for $12 per ton, and bar iron produced at $35 to $40 per ton; and after adding to this commission and carriage for a distance of 300 miles, the Western iron manufacturer can deliver his railroad iron at a profit of 15 to 25 per cent., and still undersell the lowest price at which English iron can be delivered in the Western States.

According to the statistics of the iron trade of the United States, the increased demand in the next four years for iron may be calculated at 500,000 tons a year; while the increased production of iron in the United States, at the present rate of increase for the last few years, will not be over 1,260,000 tons to meet that demand; leaving 740,000 to be imported, if the rate of production in the United States be not increased.

The reconnoissance of Greenup and Carter counties has disclosed, in 740 feet of the lower coal measures, fourteen distinct beds of excellent iron ore, varying from four inches to four or five feet in thickness, associated with coals of superior quality; and there is reason to believe that, in the belt of the same formation, stretching thence in a southward course across the entire State, abundance of iron ore and coal will be discovered in prosecuting a detailed geological survey of the mountain counties, since at various localities along its southwestern confines in Pulaski county and elsewhere, important deposits of these minerals present themselves.

The bases of both the Eastern and Western coal-fields are reservoirs of productive brines, wherever they form synclinal folds or troughs or abut on impervious vaults of the adjacent limestones; such as are worked with profit on Goose creek, in Clay county, and at Brashear's salt well, on the north fork of the Kentucky river.

The Eastern coal-field, occupying the mountain counties, lies higher above the superficial drainage than the Western. It is a prolongation of the Pennsylvania coal measures, which includes the country watered by the Big Sandy; the Kentucky river above its forks; the heads of the Licking, and the Cumberland river above its shoals, embracing some twenty-four of the mountain counties. The coals of this coal-field are, for the most part, of excellent quality, rich in fixed carbon. The main coals which have been analyzed from Big Sandy, the forks of the Kentucky river, and the shoals of the Cumberland river yielding from 58 to 63 per cent of fixed carbon, while they are free from earthy impurities.

In Greenup and Carter counties, from six to eight distinct beds of iron ore exist, sometimes in the same hill, with an average united thickness of six to eight feet; capable, therefore, of supplying under each acre, when mined and smelted, 8000 tons of iron, worth $200,000. The same hills contain, at least, good beds of workable coal, which may be safely estimated to have a united thickness of six feet of solid coal; which will afford in addition, over the same tracts, 10,000 tons per acre, worth, at a low estimate, $20,000, after throwing off an ample allowance for waste and slack.

The upper coal measure of the Eastern coal-field in the counties of Lawrence, Johnson, Floyd, Harlan and Knox, embraces very thick beds of coal, containing 60 to 63 per cent. of fixed carbon, with a very small ash, lying from fifty to two hundred feet above the superficial drainage. In Lawrence, Johnson, and Floyd, these crop out in the hills bordering on Big Sandy, and therefore easily accessible and convenient for transportation to market.

Fine workable coals, containing 60 to 62 per cent. of fixed carbon lie under the conglomerate in some of the mountain counties, as, for instance, in Pulaski county, above the shoals of the Cumberland river, conveniently situated for transportation down that river.

These few illustrations will suffice to demonstrate the great natural mineral wealth of Kentucky, which seeks only active capital to convert this raw material into articles of commerce, which next to the products of agriculture, are most essential to civilized man, but which, without that active capital must lie comparatively dormant.

Over a large part of Europe, the soil derived from the coal measures that contain their mineral wealth is for the most part an unproductive soil, or at least far below the average of soil in fertility. This is not the case with a great portion of the coal region lying towards the center of the Mississippi valley; because the soil of that region is derived more from the finely comminuted loams and calcareous marls of the quarternary deposits than from the materials of the coal measures themselves over which it has spread, and, to a certain extent, intermingled. Union county, for instance, which is based in its whole extent on the coal formation, is a very rich agricultural region, capable of supporting more than a hundred inhabitants to the square-mile, or or a population in the whole county of 50,000 to 60,000.

As one of the principal ulterior objects of the geological survey of the State will be to define the limits of the coal fields, and develop the rich mineral wealth lying adjacent to its confines, and, since the reconnoissance which has been made proved that the lower 1,000 feet of coal measures and the circumscribing belt of underlying limestone are emphatically the mineral regions of the State, it is evident that the proper plan to be pursued in the prosecution of the detailed geological survey is to carry the work at first around the confines of the coal-fields, then fill the interior from the circumference on the same plan that has been followed in Union county.

The most economical and expeditious plan would be to put an equal force on the western and eastern divisions of the State, and thus carry forward the survey simultaneously around the eastern and western margins of the two coal-fields.

PRICES OF FOOD IN EUROPE.

Food Not Scarce in Europe.—A correspondent of the New-York *Post* writing from Italy thus disposes of the idea that there is a scarcity of food in Europe:

"Having traversed a considerable part of Western and Southern Europe, in the last four months, I have observed every where the abundance, variety and moderate prices of good food, and the general uniformity of prices.

He also gives a table showing the market prices, at retail, of some leading articles, which is the best criterion of the state of the food market. It is compiled chiefly from telegraphic reports collected in the office of the Minister of the Interior, from the principal food markets of Europe, and may be relied on as a correct report of the markets about the 15th of November, when prices were the highest. The quantity of each article is one pound, avoirdupois, and the price in cents and hundredths of a cent American weight and money.

	Wheat Bread.	Beef.	Veal.	Mutton.
Rome,	5,53	7,23	7,49	6,84
London,	5,70	11,74	19,63	15,58
Paris,	4,94	11,38	15,04	13,62
Glasgow,	5,36	13,62	13,52	12,58
Liverpool,	4,68	12,90	15,91	12,90
Dublin,	5,08	12,58	15,57	12,68
Antwerp,	5,44	12,90	13,62	15,40
Brussels,	4,63	12,76	12,76	12,76
Ostend,	5,36	11,49	12,34	14,04
Armsterdam,	7,49	14,33	27,24	14,33
Rostook,	5,70	9,78	11,00	8,34
Dantzic,	6,63	10,04	13,62	9,10
Settin,	9,36	10,04	11,23	10,03
Meneil,	3,42	10,21	10,62	10,21
Oporto,	5,44	8,78	12,96	9,70
Santador,	4,44	6,89	8,00	8,00
Nice,	8,68	11,05	11,92	11,82
Port Maurice,	5,08	8,51	8,51	10,21
Milan,	5,92	10,30	10,30	7,15
Constantinople,	8,76	8,17	8,17	0,00
Smyrna,	5,08	6,55	0,00	0,00

Death of Dr. Harris.—We record with deep regret the recent death of Dr. Thaddeus W. Harris, Labrarian of Harvard University. Dr. Harris was well known as a naturalist, of great eminence, and in the department of entomology occupied a position which probably no other man in this country is qualified to fill. His valuable work on Insects Injurious to Vegetation, and his frequent contributions to the agricultural press in this important department of science, have rendered his name familiar throughout the country, and his loss will be widely felt. His disease was dropsy on the chest.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE PROPER INCENTIVE TO ACTIVE INDUSTRY.

Miss., Feb. 25, 1856.

My dear Sir:—There are many men to whom an argument—to the pocket—will have an effect, and perhaps they are the masses; therefore you was right and I wrong. The remark was made in my presence a few years ago, that it was ridiculous for a doctor, who had not made money by planting, to offer his advice to planters,—that for such men as A, or B, or C, to write for an agricultural paper would do,—such advice would be of the right sort,—they were sensible men. Aye, and many hold that to accumulate property is an evidence of talent, a *weighty consideration*. This, to me, is a knock-down argument. I acknowledge all the weight, yet I can never profit thereby. Why, sir, I can name the men who have their laborers up and waiting *in the field* for daylight,—work wet or dry, cold or hot, before day, after dark,—for the almighty dollar. Aye, sir, there are such everywhere. Grow a fruit-tree! a rose-bush! a dahlia! have a comfortable house!—"all, all is vanity,"—no, sir, these cost dollars. Improvement costs money and time, the profit is not immediate. Upon this place we use *about* 500 lbs. of nais yearly, of course plank, and of course labor. The value of property is enhanced, at least in the comforts provided for man and beast. Lumber account for plank alone was over $100 in 1855. And so it has been. Again, Mr. A. cuts logs, rives four foot boards, puts up his log-cabin, and there lives till he is worth $50,000 or $100,000. Dr. B., having lived in a city for say only a year or so, feels as if he must live while he breathes, when he buys a piece of land, builds at say only $1,000. He lives accordingly. Both these persons start in life as a babe, the same year; marry the same year. A, in twenty-five years, owns $150,000, and his house and furniture worth $500. B has perhaps $20,000, and his house, etc., though plain, is worth $3,000 or $4,000; his books alone will pay for the house and fixings of the other. A is the talented man; no man owes him a dollar, and when he moves nobody puts a black cloth on arm or hat. Whereas B, the imprudent one, is always called on for a small loan for a few days or weeks, and often sees no interest. He has troops of well-wishers.

As for myself, I prefer to provide well for my household, on principle, but not to be its slave. I can enjoy a beautiful span of horses, though not my own, but I cannot admire a colossal fortune, made as it is sometimes. I can enjoy the society of a reading man, but never the company of a money-making man,—such I mean as cannot aid a friend without looking to deeds and rents—such as never becomes intimate lest it would create a sort of compulsion to help.

As to one country making more than others, this must ever be. Just so of individuals. Within my memory at least, one portion was ahead, now another, and in thirty more years another will wear the golden crown. Make intellect or education the king, not dollars. Any aristocracy but money. I prefer, though a plebeian, the aristocracy of family.

As to my country, there are more educated men of our wealthiest than in any country I ever knew, very many of them being the architects of their own fortunes. I dare not name a few of the doctors and lawyers and graduates, that are five hundred to twenty hundred bale planters, and many of whom I know are gentlemen of noble bearing. But still this class of men belong not to what are understood by money-making men. They make money, not by nigh cuts.

Stimulate men to inform their minds, to feed their land, take due and proper care of everything in their trust, from a sense of duty to God, their country, their fellow men, and themselves. Place anything before "because you will make money." The spirit of making money has become so prevalent, that one can hardly get a man to stand still long enough to direct him to your office.—Why, sir, I am afraid my old wife will catch the complaint, and the paper I write upon will be *wasted.* Perhaps others think so now.

Why, sir, I know the man who teaches his toddling boys "stick in that cutting, it will sell next fall for two bits." The consequence is, the young man inquires how rich is Miss Seraphine, or Miss Angelina, etc.; or he receives fifty cents at the door of a spunky young Miss of seventeen—the cost of examination, in a clerk's office, of her father's will,—he wanted to see what she was worth. If "the love of money is the root of all evil," that root is spreading; but I hope never to reach it. P.

AGRICULTURAL IMPLEMENTS—LIVING TABLEAU.

THOSE who assert that little improvement has been witnessed in the art of agriculture within the last twenty-five years must be quite unacquainted with the great number of new inventions designed to give increased facility to agricultural operations. It is true that this period is eminent for progress in almost every department of manufactures and of handicraft. But a very cursory view of the list of patents will show very conclusively that genius has not been unmindful of the tillers of the soil. The attempt to meet their wants in these respects has occupied a great deal of time and has demanded continuous effort, and it has not been unsuccessful. A single one of the many threshing-machines is a boon of great value. But array the whole list of modern implements—improved ploughs, planters, drills, corn-shellers, mowers, reapers, threshers, feed-cutters, etc., what an exhbition they would make!

It would be an occasion of very great interest if our United States Agricultural Societies could feel justified in departi ngfrom the exact sphere they designed to occupy if they could collect these great machines, to the exclusion of all other inventions, at their next show in Philadelphia. Though opportunity could not be afforded for examining them all at work, they might be seen in motion, and a tolerable judgment be formed of their probable action in the field. The object would not be so much to test the comparative merits of the different inventions as to show how much has been done for the agriculturist by the inventive genius of our own age. We could portray a vision illustrating this point, which, without a large draft upon one's fancy, might afford full scope for the best efforts of the painter. We will contribute our humble mite by presenting the following

GRAND TABLEAU.

With the first rosy light of morning the world of living animals, including every variety of age and condition, present themselves before the goddess of agriculture. The whole human race, male and female, alike dependent with inferior species, stand in the immense throng, waiting upon the husbandmen, her servants, while they produce and prepare for these millions their daily sustenance.

Among the multitudes of men and animals, all alike dependent upon the success of this one petition, are the great generals who have been borne in triumph at the head of their victorious armies, and none are louder in their supplications for immediate relief. Kings come down from their thrones and join with the poorest in their realm asking for their daily bread. Men of science and men of letters all do homage alike to the lord of the harvest. Fathers and mothers, sons and daughters, brothers and sisters, magistrates and people, rulers and subjects, all occupy common ground at this hour, and on this one point, alone, perhaps, of all the subjects ever presented to the consideration of the whole world, there is no dissenting voice. Not one is silent, for even the sick and dying supplicate for their friends. All, at this hour, confess themselves the dependents of him who plants and nurtures and gathers the fruits of the earth. The bondmen labor on in their arduous work. The severity of the task compels many of them, one by one, overcome by weariness, to give up their task, and all labor "in the sweat of their brow."

But ere long Genius, who had stood for a while looking upon the busy scene before him, with his eye upturned to heaven as if giving thanks that hence had descended upon him the inspiration which qualified him for so beneficent a service, steps forward attended by a throng of intelligent artists, each delighted to perform his own appropriate work. With a smile of satisfaction at the scene which is about to be opened, he invites them to proceed. Each is at once eager to present an offering, the result of his inventive skill, the use of which will alleviate the burden of those whose lot it is to provide for these immense numbers. The grateful laborers express their great obligations for so useful implements, while the waiting throng, in their turn, offer their tribute of gratitude for so timely and so valuable a service. All alike rejoice in the possession of those means which tend to the mutual good of all concerned, and aid even the poor and the friendless to a participation in the bounties of their common Father.

Though our picture is imaginative in form, it is real in its substance. The cultivators of the soil owe a debt of gratitude to the inventive spirit of the age, the magnitude of which they cannot easily comprehend, and it is well that every suitable opportunity should be made an occasion for illustrating the connection between these various pursuits, and the benefits bestowed by each upon the rest, and for deepening and widening the common sympathy which ought to pervade the entire circle of industrial pursuits.

Prunes.—Prunes have been very successfully cultivated in Pennsylvania. Among the economists in Beaver county, they have been grafted on plums. Mr. Pfeiffer, of Indiana, raised prune trees in large numbers, and sold them at exorbitant prices, some as high as $5 and $10. He had some of the fruit at the Pennsylvania State Agricultural Fair, held at Pittsburg, which sold readily at 50c. a quart.

EXPERIMENTS IN FARMING.

EXPERIENCE is one of the best teachers and of logicians. Hence we value reliable statements of what has been done, with the conditions attending it. The following statements from the Hampshire County (Mass.) Reports, will be read with interest.

EXPERIMENTS BY ALBERT MONTAGUE.

"I present, for consideration, a statement of the effect of subsoil ploughing upon three pieces of land of similiar soil, and in about the same state of cultivation. I ploughed the land seven to eight inches deep and subsoiled six to seven inches.

No. 1 was a piece upon which a crop of corn was taken last year. It contained one acre. One half of it was subsoiled. The whole piece was equally manured and treated alike for a number of years. Upon this piece I sowed oats and grass seed, and could see no difference in the piece from the time the oats came up until harvested. But, now, the clover upon the subsoiled part is a little the largest, enough to be noticed by persons who pass by the lot.

No. 2 was a piece of green sward, containing two acres. One-half to three-fourth of an acre, through the center, was subsoiled. Upon the whole I spread compost manure and harrowed it in. I spread as evenly as I could over the whole piece; then planted it to broom-corn, using a few ashes in the hill. The piece was cultivated alike through the season, but the broom-corn upon the part subsoiled, was longer, of a better color through the season, and, I judge, will yield from one hundred and fifty to two hundred pounds of brush to the acre, more than that upon each side of it, and the seed is much better.

No. 3 was a piece subsoiled three years since, and planted to corn. Same quantity of manure was used, and it was managed alike through the season, and the corn crop was no better upon the subsoiled, than upon the part not subsoiled. I sowed grass seed at the last hoeing. I have mowed it for two years past, and each crop of grass has been much the best upon the part subsoiled, being I think near a ton more to the acre.

MANURE EXERIMENTS BY ALBERT MONTAGUE.

No. 1. I purchased last spring, superphosphate, poudrette and guano, for the purpose of testing their comparative value with each other and with barnyard manure.

Upon one acre of my best land, I spread eight loads of well rotted manure and harrowed in; then, planted to broom-corn, using $1 44 worth of poudrette in the hill upon one-half of it, and $2 41 worth of superphosphate upon the other half, dropping both poudrette and superphospate at the time of planting, using Woodward's Planter. At the first and second hoeing, the corn, where I used the superphospate, was the most promising; and at harvesting, I should judge, would yield from fifty to one hundred pounds more broom-brush.

No. 2. Upon a piece of green sward, soil rather cold and heavy, I spread fifteen loads of compost to the acre; then, planted to Indian corn, using superphospate upon one-half, and good wood ashes upon the other half, putting quantities of equal value upon each. The corn upon the superphosphate part came up first, grew the fastest, ripened ten days earlier, and will yield ten bushels of corn more than the ashed part. Nearly the same result I found, by experimenting with superphosphate and ashes upon a piece of light, sandy soil. I think the relative difference was about the same, although the piece of corn was much lighter.

No. 3. was with guano and barn-yard manure. I measured one and a half acres of good meadow land, that had been well manured and well cultivated for a long time. Upon one-half of it, I spread and ploughed in eight loads of good yard manure, for which I paid eight dollars. On the other half, being in the center of the piece, I spread guano at the same cost, as the yard manure (i. e. ., at the first cost—the expense of applying the guano was but little, compared with that of the yard manure). I harrowed *in the guano.* Then, I planted to broom-corn, using a little superphosphate in the hill upon the whole. The piece was managed alike, during the whole *season,* after the different manures were applied. Many persons, who have passed, have asked why the middle of this piece looked so much the best. I referred them to the guano. The crop is not yet harvested, but *good judges have* said there would be two hundred pounds more of broom-*brush and a greater* excess of seed upon the guanoed half.

No. 4. Believing broom-corn stalks of some value, if ploughed *in green,* I cut some stalks from a part of a piece, immediately after I had taken *off the* crop, and placed the stalks in furrows nice and smooth—one hand plowing, while another took care of the stalks. I sowed the piece to oats the following spring, and upon the part where I ploughed in stalks, the oats were one-third heavier, than where none were ploughed in. I obtained eight dollars worth of oats on one acre for the labor of getting rid of my broom-corn stalks in this way. And as to the removing the stalks, it did not cost me one dollar more than to have gathered and turned them in the spring.

EXPERIMENTS BY J. EDWARDS PORTER.

The land on which my trial of guano was made, is situated in Hadley, on the plain. The soil is a sandy loam,—has been frequently cropped with rye—the crop of 1854 yielding only five bushels to the acre. Some four years ago, wishing to try the effects guano upon this land, I purchased and carefully composted the guano with seven parts of earth; applied it to the hill, at the rate of one hundred pounds to the acre, and planted it to corn. At the first hoeing, I was surprised at the healthy appearance of the crop. It continued to grow vigorously, outstripping for a few weeks the corn upon my best land. But a change came, and my corn assumed a sickly appearance. I found that my homœopathic dose of guano, in its haste to produce stalks, had exhausted all its force and there was no virtue left for ears. My crop was a failure. So I concluded that, if I had treated my poor, sandy land more liberally with guano, I should have been amply repaid at harvest. I have since practised on this conclusion, and have had my reward. I have applied four hundred pounds of Peruvian guano to the acre, broadcast, and ploughed the whole under, to the depth of six inchcs. At one harvest, I gathered from three acres of this poor, sandy plain, three hundred and six bushels of corn in the ear, and realized a net profit of $92.

In a report of the Massachusetts Society Transactions (which contains the preceding) Mr. Francis De Witt makes the following suggestions, in reference to

IMPROVED FARMING TOOLS.

Among the many good results growing out of the formation of agricultural societies, is the rapid improvement in farming tools. In no department of industry are improvements progressing so rapidly, as in agriculture. The fact is noted in the Patent Office Reports, "that the greatest number of patents applied for and issued, of any one class, are connected with agriculture, and the fewest are those to be used in war;" it is said the proportion is nearly as ten to one. This probably in part arises from the fact that improvements can be made; that agricultural societies stimulate such improvements; and partly because labor-saving tools are necessary, owing to the scarcity of farm laborers and the high price of labor. It is hoped another good may be the result of these exhibitions of skill and industry. Our young men, who in years past, have been disposed to forsake the old homstead, and the tilling of the ground for positions and occupations in cities and large towns, with a *future prospect* of a little more cash, but far less independence, may be enabled to see that there is a scope for the mind, in the science as well as art of farming; and, by the use of the improved and labor-saving machines, the farm work is not all mere drudgery. At the same time, there is more real enjoyment of the gifts of a bountiful Providence than can be obtained in the usual employments of the dense population of a city. The farmer and mechanic are so closely connected in interest, and so dependent upon each other, that it is desirable they should, on an occasion like this, meet on common ground, and together enjoy that interchange that is necessary for mutual improvement. We hope the fairs of this society will increase in interest in this essential department of agriculture.

MODES OF FARMING.

We are well aware that no two good farmers agree exactly in all their ideas of good farming, and yet there is a principle, the guaranty of success, which runs through all their diverse systems. We are always amused and sometimes instructed by the discussions of the farmers in the State House in Boston. They evidently go upon the principle "semper paratus," which in this case, liberally translated, *may* mean "take no pains to prepare." Hence all manner of positions are taken on almost all branches of the business, and maintained by suggestions that occur to them at the moment.

The following statements are worthy of attention. They are taken from a report of a recent meeting, in the *Ploughman:*

CULTIVATION OF CORN—MODE OF FEEDING.

Hon. R. S. Fay, of Lynn, said he had satisfied himself that corn was a hungry feeder. He makes his land rich. He turns the grass over in autumn, then ploughs once or twice in the spring, puts on twelve cords of manure to the acre and ploughs or harrows it in.

He made no hills, kept the land flat after planting in rows three feet and six inches apart. Not much use was made of the hoe. Not more than ten or fifteen days were allowed to intervene without passing a light cultivator between. This saved labor and left the land cleaner.

Barn-yard manure was ploughed in green in the fall. It was composted in the spring. This supplies the wants of the crop to a full degree. Has no doubt that a hundred pounds of plaster with some leached or unleached ashes, applied at planting, or after it came up, was beneficial.

He cuts the corn to the ground as soon as the kernel is glazed. It is placed in small shooks and stands till sufficiently dry. The sap is thus stopped and dried in the stalk. Thinks more saccharine matter is thus secured.

The fodder is salted. It is all cut fine before feeding out. A little meal is added. A jet of steam is let on for twenty-four or forty-eight hours. It was the main food of his cattle for two months. He sees no cattle that are kept better. They leave none. The entire crop is utilized. Not a piece was lost.

In China there was a kind of corn valuable for sugar. The inquiry was whether it could be made useful here for corn-fodder?

DE BURG'S PHOSPHATE.

Hon. **Amasa Walker**, of Brookfield, said the corn *crop* was *not* sufficiently valued. The use of it for green fodder was *increasing*. *It came* just at the time our pastures were short, and it was just the thing wanted. The culture of it was becoming common.

He used last year De Burg's "Phosphate of Lime" with great success on various crops. There was a great difference where it was used through the season. Its effect was not so striking on potatoes. He used it also on grass lands with a clay substratum. It was natural mowing land, that he did not plough up.

When the grain was cut the crop was twenty-five to thirty-three per cent. more where this phosphate was used. On the second crop the increase was still greater. It was a thing about which there might be much deception. It might often be adulterated. But it would be for the interest of the manufacturer to keep up the quality.

A handful in the hill was safe and simple. In planting with guano all his corn was killed, although five times the bulk of dirt was mixed with it, and the men were directed to cover it with dirt before putting the corn in.

PROFITS OF CORN.

Mr. **Cooley**, of Conway, finds corn his most profitable crop. He plants same land two years in succession. He manures both seasons. The second year he ploughs in twenty-five loads to the acre, and puts eight loads of compost in the hill and raises seventy bushels to the acre. A strict account was kept, and the cost of his corn was forty-eight cents per bushel. Half the manure only was charged to the corn. The labor was reckoned at one dollar per day. His corn weighs sixty-four pounds to the bushel in January when thoroughly dry.

CORN MAKES THE BEST BUTTER AND CHEESE.

Mr. **Osgood**, of South Reading, said it had been his business to travel in Massachusetts and New-Hampshire buying butter and cheese. He found the best butter and the best cheese was produced by those farmers who resorted to the use of corn fodder. Their cattle also looked better. He used the Southern white, large flat corn, and planted from the 6th to 13th of June, in a light sandy soil, on which white beans had been raised.

In the drills he placed manure made with night-soil and coal ashes from hard coal. His friend Mr. Sanger, of Danvers, had first used hard coal ashes in this mixture with great success.

His cows increased their amount of milk when he commenced feeding with green corn fodder. They increased for the first four days constantly. There was no trouble with their decreasing afterwards while they had plenty of corn. His cows came nearly up to the best week in July.

PROFITS OF FARMING.

We present below the crops produced by farmers in different parts of Massachusetts, as reported in the transactions of the Agricultural Society of the last year, and intend to follow up this exhibition, not of possible but of actual products, by good farmers, on all kinds of soil, that others may see how far short they come of the profits within their own ability. We have presented such statements from time to time, and we hope to find that the number of those who are just to themselves and to their chosen pursuit will be multipled year by year. Interest on the value of the land is included in the estimate of expenses.

Harvey Dodge, Worcester Co., Mass., farm 93⅓ acres, of which 10 acres were waste, 10 of woodland and 22 of pasture. Cost of cultivation, $1299. Products, $2102 50. Profit, $803 50.

J. C. Merriam, Worcester Co. Farm 60 acres 38 rods, of which 9 acres are woodland, 4 are swamps and 21 pasture. Annual expenses, $446 06. Products, $1147 84. Profit, $698 78.

Austin Smith & Sons, Franklin Co. Farm 64 acres. Annual expense, $1955 60. Products, $3944 90. Profit, $1989 30.

R. Wales Smith, Hampshire Co. Farm 85 acres, of which 39 are pasture and 16 woodland. Annual cost, $759 75. Products, $1324 11. Profits, $564 36.

Dr. Morten, Norfolk Co., reports a profit of $97 52 on a half acre of potatoes, of $14 57 on a half acre of fodder corn, and of $62 02 on a half acre of carrots.

FOR THE PLOUGH, THE LOOM AND THE ANVIL.

COTTON GINS.

Miss., Feb. 23, 1856.

To Mr. H. Clarke, Newport, Fla.:

Dear Sir:—On 470-471 pp. of this work, (current volume) will be found an article of yours from the *Scientific Farmer*, upon the subject of "Cotton Gins."

I am no mechanic, but being the son of one, I am perhaps drawn to the subject of mechanism. Your article upon this matter is like the sound of the horn or the bark of a pack of hounds to an old courser, and should I shew the old fogy, I beg you will not think it is done in unkindness. As a planter, I am deeply interested, but really more so as an improving man, as a citizen. Mr. Fultz, to whom you allude, was kind enough to draw my attention to his improvement, before he received a patent, sent me specimens and asked my opinion. I have "stood up to" many gin stands, make it a point to try all I can, I mean to *feed* the stand myself, and strange as it may seem, I delight in it. I have turned out a bale per day, more than any ginner ever averages. I beg to differ with you as to gin stands, saw-gins, being as yet perfect. I have used five different gin-stands, the first made by a Carolina workman, a young man who served his time with McCreight of Winnsboro, S. C., and made me the best cotton, large teeth. All I have seen will nap or twist if cotton be wet. This is caused by the teeth getting full of lint and pressed in so as not to be separated by the brush; some will nap owing perhaps to teeth being so pointed as to be forced into cotton, or the brush wants velocity, or bristles not enough.

My idea is, to gin 3 to 5 bales, without giving velocity would be to make longer saws and have teeth small and square, give the *brush velocity* sufficient to clear each tooth so that no cotton pass *through the grates* the second time. My reasons—Some 15 years ago I *took a sample from* my gin stand; some of the seed cotton also, ginned this upon a *spinning jenny*; sent both samples to a merchant, he offered some 2 or 3 cents *more for the* last, and begged the opportunity to buy. Thus the ginning made an *increase* value of at least 2 cents. I have known an improvement by substituting the best Russia bristles with a little more speed to brush. I have also improved, by making the driver or saw cylinder near two inches larger, so as to increase speed of brush. I am satisfied that shorter teeth will be less liable to nap, and less motion of saw will break fewer fibres. I do not suppose that I have offered a new idea, yet these statements may suggest one to you or others. Yours with respect, P.

SHEEP IN THE VALLEY OF VIRGINIA.

[We have received from a valued correspondent, Mr. S. F. Christian, of Augusta, Va., a copy of his premium essay on the subject of wool-growing. He is not only familiar with the subject but, what is far more rare, he appreciates the difficulties which are imposed by lack of judgment in the owners of sheep, and points out the remedy which should be applied. We give this essay entire, and commend it to all interested in this subject.—Ed. P. L. & A.]

Having given my personal consideration and attention, during the last ten years, to wool-growing as an incident of agriculture, I submit a short, practical essay, treating of my experience and practice in sheep husbandry in the Valley of Virginia.

The Valley possesses important natural advantages for the production of fine wool and mutton. The soil is based principally upon limestone and blue slate, with sufficient admixture of sand to produce in perfection all the cereals and the various grasses best suited to the sustenance and development of stock. The climate is favorable, obtaining a happy medium of temperature throughout the year, and the purest water gushes in copious streams from a thousand hills. The face of the country being well diversified with rolling hills and winding vales, with craggy cliffs and mountain sides, with frequent intervals of forest and field and meadow, presents just that condition most congenial to the habits and nature of the sheep.

In establishing a flock for this locality—wool being the primary object, guided by some experience with Bakewell, Cotswold, Saxon, and Spanish merinos, I preferred the last as best adapted in character and constitution for improvement and profit, under the circumstances of this country. Accordingly, I selected in three different States at the North thirty head of Paular and Guadaloupe merino; choosing them from three distinct families, and since carefully numbering and registering them and their descendants, after the suggestion in Morrell's American Shepherd, page 279.

Selecting one hundred and fifty of the finest ewes from the common breeds of the country, I put with them a fine Cotswold ram, and with the ewes from this cross I put a merino ram; and with all the subsequent female progeny continued to put full blood merinos.

The Cotswold ram, in the first generation, was used to give form and size; though now, for that purpose the Oxford Down (a new breed) would be preferable as having a form still more symmetrical, and a fleece approximating nearer in quality to the merino. All the buck lambs from these several crosses were, as wethers, at the age of two years, fatted and sold for the shambles.

About the last week in October my rams are put with the ewes in the proportion of three rams to one hundred ewes, and remain together until about the middle of December following. They are then separated, the rams and wethers forming one flock, the breeding ewes another, and a third is composed of the young ewes which were taken from their dams during the preceding August. On the approach of winter the several flocks are put in fields, inclosing each a portion of woodland. The forest trees furnish for our climate a sufficient and also the most acceptable shelter to the sheep; to test this I have had good sheds prepared in the fields, but the sheep leaving the sheds invariably sought shelter among the trees from every approaching storm of sleet or snow.

The box rack is the most convenient and economical for feeding. Hay, corn-fodder, and oat-straw, furnish their winter food, and the foddering season usually lasts for four months. Green food occasionally through the winter is of very great advantage. Indeed, could a sufficient supply in any way be obtained for the whole year, it would be far better than any other. In this climate some grain might be sowed with this object. In North Mississippi for several years I kept a flock of Saxon merinos grazing almost the entire winter upon fields of rye, sown in the standing corn and cotton at the last working of the crops. The sheep throve remarkably well, and were wintered with far less trouble and expense than if kept on dry food, and the wool was manifestly finer in fiber and softer to the touch. Of this latter particular I was fully assured by having preserved samples of wool for successive years from several sheep when wintered on green food to compare with samples from the same and similar sheep when fed exclusively on dry food. M. R. Cockrill, Esq., of Tennessee, from whose celebrated flock my sheep had been obtained, also experimented in this matter with similar results.

In the Valley of Virginia, where showers are frequent, and dews and frosts heavy, sheep may do without other water, though they always thrive best and build up better constitutions when having free access to fresh running water. The lambs are dropped through the month of April. About the first week in May is the time in which they should be penned, docked and castrated. This is best done in the mode recommended in Morrell's American Shepherd, p. 174.

The wool I have washed upon the sheep's back about the 20th of May, or as soon thereafter as the weather and water become sufficiently warm. The most convenient plan with me is to drive the flock to a neighboring mill-pond, to be washed in the "trunk" which conveys the water to the mill. From a pen built against the trunk, the sheep are taken by a person standing beside the trunk, and plunged in the water till washed; then being passed up stream to another hand, the wool is rinsed and the sheep given over to the herdsman, who takes them to a clean grass sod, where their fleeces will not be soiled. Three good hands may thus wash about four hundred sheep in one day. After four days of dry weather, the shearing may be commenced. The fleeces should be rolled up separately, inside out, and packed for marketing in sacks holding each about twenty-five fleeces.

At this time I examine the sheep very closely in order to mark and turn out for fattening, all the runts, and those in any way inferior for breeders. Thus the flock is soon and permanently improved. The *common course*, however, with many farmers in this region, is to keep *all their sheep together* throughout the year, and when mutton is wanted for *the table in the spring*, to select the fattest and best formed, which is usually the youngest *and* best of the ewes; thus leaving the ill-formed and lean kind for the *propagation* of their flock. Nor is it wonderful, physiologically considered, that in a *few* years they discover that their flock is "running out," and find it necessary to buy up a new stock for a fresh start. Hence, too, the common fallacy that sheep will not do well if kept long on the same farm.

In grazing through the summer, I very frequently change the sheep from field to field; otherwise, the grass becomes tainted and they will not relish or improve upon it. They should be salted twice a week upon the ground; a little wood ash mixed with the salt is very beneficial. Sheep thrive best upon a variety of herbage, and eat much vegetation that large cattle refuse. Their manure is very valuable as a fertilizer.

It is a common complaint that sheep injure pasture land by grazing too close. Sheep are constituted by nature to graze closer than cattle, and if kept too long upon the same pasture field will of course injure it; they *have* only to be removed before the grass is cropped too close. The custom with too many farmers is to graze a field with cattle and horses until these can no longer crop enough to support life; then to turn in the sheep, who are thus forced for a living to nip it to the roots, to the serious injury of the proprietor's pasture, and their own disparagement. If sheep were fairly treated and judiciously managed, they will actually improve land more and injure it less than other stock; a fair experiment will so demonstrate.

For several years by grazing both cattle and sheep, I have had opportunity to compare the relative profits. On a fair account kept with each for my own satisfaction, it appeared that the sheep yield about 25 per cent. more profit upon the capital invested than did the cattle—and this without including a large proportional sum from the sale of select rams for breeders.

The average price obtained for my wool during the three last preceding seasons, is forty-nine cents per pound for that sold in Virginia. The average weight of fleece in the entire flock of thorough-bred merinos is something over five pounds per head, washed upon the sheep. The expense of keeping the Spanish merino is astonishingly little.

Sheep are the only domestic animals that yield both food and clothing. Their flesh is very easy of digestion, wholesome and nutricious, and is universally esteemed by epicures. Their wool is an article of prime necessity, used by all classes both by day and by night. The demand for home consumption far exceeds the supply, and many millions of pounds are brought from abroad, while no other country possesses greater facilities for sheep husbandry than our own Valley of Virginia.

INSECTS INJURIOUS TO VEGETATION.

LEPIDOPTERA CONTINUED.

HESPERIADÆ, SKIPPERS.—The English name was given to these insects from their habit of flying short distances only. When they alight they keep the wings expanded, the fore-wings being partially raised. Other butterflies close their wings when they are not in use. This is a more obvious distinction than any differences in their organization. Their caterpillars are somewhat spindle shaped, tapering towards each extremity, without spines, naked, or downy only, with a large head and small neck. Their habits are solitary, concealing themselves often when about to undergo transformation within folded leaves or fragments of stubble. Their chrysalids are conical, or tapering at one end, and rounded or pointed at the other, not angular nor ornamented with spots, but often covered with a blue white powder.

HAWKMOTHS, SPHINGES.—These form the second of the three genera into which the Lepidoptera were arranged by Linnæus. The name was suggested by a fancied resemblance to the Epytian sphinx. They support themselves by their four or six hind-legs, elevating the fore part of their body, and retain this position for hours together.

The true sphinges make a sound in flying resembling that of a humming-bird, and hence are sometimes called humming-bird moths. They are also called hawk-moths, from their habit of hovering in the air while taking their food. They may be seen, morning and evening, flying very swiftly from flower to flower. Their wings are long, narrow, and pointed, their bodies thick and robust. They have long tongues with which they extract the honey from blossoms while on the wing. Some sphinges fly only in the daytime, and when the sun shines brightly. Such are the

Sesiæ, which are partial to the phlox. These insects appear in July and August. Their form, size, color, and fan-like tails, and their manner of taking their food, cause them to be mistaken, sometimes, for humming-birds.

Aegeridæ, *Aegerians*.—These insects resemble wasps or bees in form and color. They fly by day, but usually alight while taking their food. Nor are they so swift of flight as the preceding. Their wings are narrow and mostly transparent; they have a brush or tufts at the end of the body, which they can spread out in the form of a fan. They fly only during the day. They derive their nourishment, while in the caterpillar state, from the wood and pith of plants, keeping themselves concealed within their stems and roots. Hence they are called borers. These caterpillars are whitish, soft, and slightly downy, have sixteen feet, are destitute of any thorn or prominence on the last segment of their body. Their cocoons are oblong-oval, composed of fragments of wood and bark, cemented together. The chrysalids are of a shining bay color, and their different segments are armed with transverse rows of short teeth. Some of this genus are fond of the ash; others, as the *Aegeria Cucurbitæ*, prefer the cucumber, squash, etc., which in August are often destroyed by this insect. It begins its operations near the ground, and perforates the stem, devouring it as they proceed. Its chrysalis is formed in the earth, and appears in the next summer a winged insect, with a body of orange color, spotted with black, its hind-legs fringed with long orange-colored and black hairs. The hind-wings are transparent, the fore-wings expand an inch or an inch and a half. It lays its eggs in the vines near the roots. This insect may be seen flying about during the last half of July and to the middle of August.

The *Aegeria exitiosa* is the insect which has proved so destructive to the peach tree. The eggs are deposited in the summer upon the trunk of the tree, near the roots. The borers, when hatched, penetrate into the bark and devour the inner bark and sap wood. Their presence is marked by the castings and gum which issue from their holes in the tree. When a year old, they make their cocoons under the bark, or about the roots, and come forth as winged insects, and lay their eggs as before. Their last transformation is from July to October. The winged insect is slender, steel-blue color, four-winged, slightly resembling a wasp or ichneumon fly. The two sexes differ in appearance. The male is smaller than the female. Head, with band at base, both above and below a pale yellow; eyes, black brown; antennæ ciliated on the inner side, black, with a tinge of blue. All his wings are transparent and are bordered and veined with steel blue. The feelers, shoulder covers, edges of the collar and of the abdominal rings, are pale yellow. It expands about an inch. The body of the female is dark steel blue, with a tinge of purple, antennæ destitute of fringe. The fore-wings are blue, opaque; hind-wings transparent, bordered and veined like those of the male; and the middle of the abdomen is encircled by a broad, orange-colored belt. It expands an inch and a half or more. Dr. Harris recommends the following mode of defence against this insect, which has proved successful heretofore:

"Remove the earth around the base of the tree, crush and destroy the cocoons and borers which may be found in it and under the bark, cover the wounded parts with the common clay composition, and surround the trunk with a strip of sheathing paper eight or nine inches wide, which should extend two inches below the surface of the soil, and be secured with strings of matting above. Fresh mortar should then be placed around the root, so as to confine the paper and prevent access beneath it, and the remaining cavity may be filled with new and unexhausted loam. This should be done in June. In the winter the strings may be removed, and in the spring search for more borers, and renew the same protecting applications as before."

One means of preventing the ravages of this insect, as described by Say, is as follows:—Examine the trees early in July; take a bricklayer's trowel, and opening the ground around the trunk, the lodgement of the insect will be at once discovered by the appearance of gum, and it can readily be destroyed. One person can thus examine a hundred trees in a half day, and very few insects, if any, will escape. But more effectually to destroy them, early in August take some swingling tow, or a similar thing, six inches or more in width, tie close around the body of the tree, the under edge to be a little covered with earth, so as to prevent any passage beneath. About the middle of September remove the bandage, and give the whole tree a covering of soft-soap or lime-wash or tobacco. Or if the bandage described is dispensed with, use a bandage of tobacco leaves or stems from the first of August to November.

Great advantage has also been derived from the use of anthracite cinders. Open a basin around the trunk of the tree and fill it with the cinders.

See also Mr. Skinner's American Farmer, vol. 6, pp. 14, 37, 334, 401.

The egg of the peach borer is oblong-oval, dull yellow, and so small as to be scarcely visible by the naked eye. The larva is of a white color, the head being reddish brown. In the pupa state each segment has a brush or tuft of spines, except the three terminal ones, which have a single row of spines only. The pupa state continues from about the 10th of July till the end of the month or the beginning of August.

The *Aegeria tupeliformis* infests the leaves of the currant bush. The habits of this genus resemble those of the peach borer. The moth is a blue black color; wings transparent, veined, with a copper-colored band across the tips of the anterior pair; the under side of the feelers, the collar, the edges of the shoulder covers, and three narrow rings of the abdomen are golden yellow.

The *Aegeria Pyri*, of Dr. Harris, attacks the pear tree. Its wings expand more than half an inch, are transparent, veined, bordered and fringed with purple black, and across the tips of the fore-wings is a broad, dark band, glossed with coppery tints. The prevailing color of the upper side of the body is purple black, and of the under side golden yellow; so, also, the edges of the collar, of the shoulder covers, of the fan-shaped brush at the tail are yellow, and a broad yellow band crosses the middle of the abdomen, preceded by two narrow bands of the same color.

The *Smerinthi* are sluggish in their movements, fly during the night only, take no food, apparently, while in the winged state, and have short tongues. Their fore-wings are generally scalloped on the outer edge. Their caterpillars are rough, or granulated, with a stout thorn on the tail; a triangular head, the apex of the triangle corresponding to the crown. This insect is not very common.

The *Glaucopidians* mostly fly by day, and alight while feeding. This genus is distinguished from other spinges by their antennæ, which, in the males at least, and sometimes in both sexes, are *pectinated* as it is termed, that is, are furnished on each side with slender, parallel branches, like the teeth of a comb or the plume of a feather. They devour the leaves of plants. Their cocoons are formed of coarse silk. The caterpillars are green, with black bands, and slightly hairy. They are gregarious, but disperse when about to undergo their transformations. These insects answer to the Procris Vitis or P. Ampelophaga of Europe, which have proved very destructive to the grape vine.

Quinque Maculatus.—This is called the Five-spotted sphinx, from five round, orange-colored spots found on each side of the body. It is about five inches across the wings, of gray color, variegated with blackish bands or lines. Its tongue can be extended five or six inches, and when not in use is coiled up like a watch-spring, and is almost concealed between two feelers. It closely resembles the Carolina sphinx.

The larva of this butterfly is the large green caterpillar, known as the potato worm. It has a thorn upon its tail, and whitish, oblique stripes on its sides. This insect devours the leaves of the potato. After it has attained its full size of about three inches or more, when it has the thickness of a man's finger, which is in August, it descends to the earth and buries itself beneath the surface. After a few days it becomes a chrysalis, of a bright brown color, its long and slender tongue-case bending over so as to touch the breast only at one end, resembling the handle of a pitcher. It remains in the ground below the reach of frost during the winter. The season following it bursts its chrysalis covering, and the moth escapes above ground. It rests upon some plant till evening, and then flies in search of food.

Another species of sphinx infests the elm. It is separated as a distinct group by Dr. Harris, called *Eratomia quadricornis*, from its having four horns on the fore part of the back. They are three and a half inches in length, of a pale green color, with seven oblique white lines on each side of the body, and a row of little notches like saw teeth on the back. Their four horns are also notched. There is a long, stiff spine on their hinder extremity.

Near the end of August they descend from the trees, and soon enter the earth to become chrysalids. Passing the winter within the ground, they come forth in the following June, and may be seen in considerable numbers on the trunks of trees and on fences. Their wings *then open* nearly five inches, are of a light brown color, variegated *with dark brown* and white. On the hinder part of the body are five *longitudinal lines of* a dark brown color.

Another caterpillar, which is very destructive to the leaves *of the grape* vine, is called by Dr. Harris *Philampelus*. "When young they have a *long* and slender tail, recurved over the back like that of the dog; but this, after one or two changes of the skin, disappears, and nothing remains of it but a smooth, eye-like raised spot on the top of the last segment of the body. Some of these caterpillars are green, others brown, and the sides of their body are ornamented by six cream-colored spots, of a broad oval shape in the species which produces the *Satellitia* of Linnæus, but narrow, oval and scalloped on that which is transformed into the species called *Achemon* by Drury. They have the power of withdrawing the head and first three segments of the body within the fourth segment, which gives them a short and blunt appearance." They attain the length of three inches or more, are thick in proportion, and are voracious. The come to their growth in August, descend into the earth to undergo transformation, ascend, in the winged or moth state, in June and July.

"The *Satellitia* hawkmoth expands from four to five inches, is of light olive color, variegated with patches of dark olive. The *Achemon* expands from three to four inches, is a reddish ash color, with two triangular patches of deep brown on the thorax, and two square ones on each fore-wing. The hind-wings are pink, a deeper red spot near the middle, and a broad, ash-colored border behind."

Another sphinx, very destructive to the grape vine, is smaller than the preceding, which not only devour the leaves, but nip off the young fruit. They are naked and fleshy like the Achemon and Satellitia, a pale green color, but sometimes brown, a row of orange-colored spots on the back, six or seven oblique lines on each side, and a short spine or horn on the hinder extremity; head very small. The fourth and fifth segments are large and swollen, while the anterior segments taper abruptly towards the head. The fore part of the body presents a resemblance to the head and snout of a hog, and hence it has been named the Chærocampa or hog-caterpillar. It is found on vines and creepers in July and August. It undergoes its transformations on the surface of the ground, concealed under leaves and rubbish, which it draws around it, and appears a winged insect the following summer in July.

The caterpillars of the spinges have sixteen legs, joined in pairs, beneath the first, second, third, sixth, seventh, eighth, ninth and last segments of the body. The last segment is furnished with a horn or tubercle. When at rest they keep the fore part of their body elevated.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

HOPS IN LAMOILLE COUNTY.

MR. EDITOR:—The year has again rolled round. It rather becomes my duty to remark somewhat on the hops reared in Lamoille county last season.

The weather was about as much too wet last season as it was too dry in 1844; the frequent rains caused the hop to rust. At the time the strobiles were nearly grown, and quite tender, we had frequent winds, that agitated the vines and bruised the tender buds or cones, which assumed a reddish-brown color, which was injurious to the sale of the hops; in consequence of which many went second sort.

The hops will hardly average $5 00 per hundred. There being many new yards, there have been a few more raised in the county than last year. In Hydepark, in 1855, 75 tons, the amount realized $40,000, and $100,000 in the county; this year the growers in Hydepark will receive about $7,500, and the county about $20,000; not enough to cover the expense of picking and bailing.

Many have contracted debts on the expectation of realizing an abundant crop and fair prices for their hops. The fall of hops has caused a great dearth of money, and much financial distress. ARIEL HUNTON.

HYDEPARK, Vt., March 12, 1856.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

PROSPECT FOR FRUIT, ETC.

BALDWINSVILLE, N. Y., March 22, 1856.

MR. EDITOR:—In consequence of the circulation of reports that the fruit-buds (which I presume is true) are generally killed in the West, people East are apprehensive that they may possibly be dead with us. This, however, is not true, for I find that peach-buds in almost every instance are alive. Some few are black, but generally they are green, and look fine. The conclusion is, therefore, that we shall have a fine crop of this kind of fruit in Jersey and New-York. It has been about eighteen or twenty degrees colder in the West this season than here,—cause not known. In years gone by this, I believe, has not generally been the case. I never experienced more searching or more intensely cold weather than I found in the State of Indiana this winter. The air was amazingly cold—so cold that it was not safe for an individual to face the wind any great length of time. This was on the 10th of February. After arriving home I found a material change in the state of the weather as well as in the atmosphere. I have always noticed that the air, during the winter season in the West, was more severe and searching than with us. I cannot account for this, unless, indeed, it is in consequence of the immense bodies of water which the western people are blessed with. The prairies may have something to do with the severity of the winds. It is very true that it is not safe for an adventurer to make his way across those large prairies during the prevalence of very cold weather; for instances are quite common in which travelers and others have frozen to death in making their tours over them.

I am very confident of another fact with reference to the West, and that is, the country is not so sure for fruit as it is in this eastern world. This, unquestionably, is the effect of the changeableness of the climate, sudden thaws and sudden frosts out of the season, and sudden atmospheric changes through the year. These things cause the western country to be a poor locality for raising fruit successfully during a series of successive years. Yet, Mr. Editor, I have seen as fine apples in the West as I ever saw in any country, both large and fair. Now, I do not believe that the western people will be blessed with many apples or a great quantity of other fruit this coming season. In many parts of the West, say from Cleveland to St. Paul, and in fact we can say this of many other localities in the West, the thermometer has indicated a temperature at from 25° to 31° below zero! This is singular, but nevertheless it is true. While it has been thus cold in the West, the thermometer has been down only about 10° or 12° below zero in the State of New-York and other places in the East. Why is this, Mr. Editor? Will you explain? On the banks of the Mississippi snow has not at all been unusual this winter far below Cairo and within the confines of Tennessee. In many of the Western States the snow has been fifteen inches deep, and I am not certain but its depth may be set down at twenty inches. For many long years the people have not been so abundantly supplied with snow as they have been during the winter of 1856. For instance, to speak about our own country, snow has been measured to the depth of three feet and a half in Oswego Co., N.Y., this season! This depth was found in the woods where the snow was protected from the influence of the wind. Railroads have been blocked up, business has been delayed, men have been greatly incommoded by the quantity of snow; mails have been impeded, and people have been forced to keep within doors, all in consequence of immense deposits of snow, not only on railroads but on other traveled thoroughfares.

From these considerations, Mr. Editor, I conclude we shall have a late spring, though it is to be hoped a fruitful season. It will take some time to produce a change on the ground so that it will really be fit for cultivation.

And there is another thing, farmers, by reason of the general fall in the price of provisions, will not plant nor sow nor raise as much grain and vegetables as they did in the year 1855. The "*one-acre-more*" system, as carried out last season, has seemingly filled the whole country with a surplus of most kinds of food. Hay is at reasonable prices, or at least has been, and so we may say of many other kinds of provender. But the farmer, notwithstanding this state of things, ought not to relax his efforts, but should raise all the products he can, for there are now as many people to eat and feed as there were a year ago. "Wars and rumors of war" do not increase nor diminish the amount of food consumed by the people. This is very evident. Very respectfully, W. Tappan.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

DIOSCOREA BATATAS.

I HAVE noticed sundry remarks made by persons at the Farmers' Club, and several squibs in newspapers, regarding the Chinese potato, with the object of underrating its merits. Not one of these remarks has emanated from a man well informed on the subject, or who would give any authority for his effete arguments. Jealousy and spleen have had much to do with these misstatements.

It will be borne in mind that Professor Decaisne stated in the *Revue Horticole* for 1854, that the *Dioscorea Batatas*, which was received from China only in 1850, is an entirely distinct species from the *Dioscorea Japonica*, (Japan potato,) which had been obtained many years previous; and it is the former which he has found to be highly commended in the Chinese agricultural works, and of which they have in that country more than fifty varieties, more or less valuable. In the *Revue Horticole* for 1855 he has most fully confirmed his previous position, and has given us engravings showing the very distinct characters of the two plants, although to a casual observer of these two trailing plants the distinction might not be apparent.

These statements of Professor Decaisne are of the highest importance, as we already find that the two species are being disseminated confusedly, a circumstance calculated to lead to many future disappointments, as the one is so very superior in its qualities to the other, which has hitherto been cultivated only as an object of curiosity. It would be worthy any one's attention to examine pages 69 to 74 of the *Revue Horticole* for the ample delineations of the two plants, with his caution against the apparent confusion that exists in France—a confusion which has now been extended to our own country by the importation of both these species. It appears that Monsieur de Montigny, French consul at Shanghai, in accordance with instructions from the French government to seek out the most appropriate substitute for the common potato, which had become so subject to the rot and other maladies, instituted a thorough investigation of the qualities of the numerous varieties of the Dioscorea Batatas; and after the fullest research he transmitted to the Museum of Agriculture at Paris the *Imperial Rice-white* variety, as far surpassing all others in general excellence, remarkable for the snow-white color of its flesh, and for yielding a beautiful, pure white flour. Being determined to start on the surest ground in my experiments, I took such measures through my Paris correspondents as would insure to me the obtaining of the highly approved variety I have referred to. The result has been most successful. The roots when dug were remarkable for their beauty, and for their pure white flesh, of a delicately farinacious flavor. In view of these facts it is scarcely necessary to add that our importers should exercise the greatest caution and scrutiny in making their selections, and that purchasers of imported roots should demand an inspection of the invoice, as a proof of their being the genuine Dioscorea Batatas (of *Decaisne*,) and not the spurious species.

W. R. PRINCE.

AMERICAN INSTITUTE.

FARMERS' CLUB MEETING OF MARCH 4, 1856.

THE Secretary, Henry Meigs, Esq., read extracts translated by him from the *Journal de la Sociéte Imperiale et Centrale d'Horticulture.* Napoleon III., Protecteur. ,Paris, December, 1855.

Mons. Capp, Chief Gardener of the Useful Plants in the Museum of Natural History, in the name of Professor Decaisne, presented magnificent tubers of the Dioscorea Batatas, (Chinese yam.)

The small pieces of this Dioscorea were planted in April, 1854, and are now of considerable size, and weigh 500 to 1000 grammes, (17½ to 35 ounces,) and ramify much.

Messrs. Chevel, of Montigny, said that they had tasted this *Dioscorea* last week, and that the flavor rendered them excellent.

Mons. J. Dumas, on the contrary, said that he *had tasted some that were fade*, (insipid,) and looked like mucilage. Some *members said that perhaps* they were not sufficiently matured.

Mons. Bourgeois said that he had the last year received some *of the* tubers, which were different in figure from the rest, and that *instead of* being round they were flattened.

Mons. Remont, of Versailles, presented several specimens of his first crop of the Dioscorea or Ignome. They were raised from the bulbilles, (little bulbs); some were grown on new land in the environs of Dax, department of Landes. Others, near Versailles, in rich and well manured soil, produced an inferior crop to the former. Mons. Remont stated that he had tried panification (bread-making) by adding 20 per cent. of this Dioscorea to wheat flour, and that the bread was excellent. He hopes that 35 per cent. of this root may be added to flour with advantage. Planted in April, a hectare (two and a half acres) may yield 65,000 killogrammes of the tubers—about thirty-five tons to an acre. (This would be 780 bushels per acre.)

Mons. Payen said, that if we can obtain 40,000 killogrammes per *hectare*, it would be an immense advantage gained for agriculture. He desires of Mons. Remont to dry some of the Ignames and ascertain their proportion of starch. He observed that it was a remarkable circumstance in this elongated root, that the starch was far more abundant near its upper extremity than at its base; that those cultivated in Algeria were more full of starch than any grown in France, and that like differences are found in the starch of the common potatoes, which vary from 14 to 27 per cent. of starch.

Professor Decaisne said, that during the last year some of the tubers produced 17 to 18 per cent. of starch.

Mons. Guerin-Menneville said that Mons. de Montigny has sent from China *bulbilles of several varieties* of the Dioscorea.

Messrs. Decaisne and Remont pointed out a singularity in the cultivation of this plant, quite remarkable, which is that *they hate dung! The Chinese never use it in cultivating the Dioscorea!*

As to the difficulty of getting out the crop, their depth in the ground being so considerable, Mons. Bourgeois said, a plough can be made as well suited to plough them out as the plough used for carrots.

Mons. Remont says, he intends to try the cultivation of this new root in six of the departments of France.

Messrs. Bossin and Louesse presented Dioscorea tubers grown from the bulbilles (little bulbs,) and others from the cuttings of the root.

Professor Decaisne presented small tubers of the Dioscorea Batatas, and also of the Dioscorea *Aroides*, received direct from China. The first are long roots with *truncated ends*; the latter are probably the Colorasse, (species of Arum.)

THE AMERICAN POMOLOGICAL SOCIETY.

SIXTH SESSION.

In conformity with a resolution passed at the last meeting of this National Association, the *Sixth Session* will be held in Corinthian Hall, in the city of Rochester, New-York, commencing on Wednesday, the twenty-fourth day of September next, at 10 o'clock A.M., and will continue for several days.

Among the objects of this meeting are the following: To bring together the most distinguished Pomologists of our land, and, by a free interchange of experience, to collect and diffuse such researches and discoveries as have been recently made in the science of Pomology—to hear the Reports of the various State Committees and other district associations—to revise and enlarge the Society's catalogue of Fruits—to assist in determining the synonymes by which the same fruit is known in America or Europe—to ascertain the relative value of varieties in different parts of our country—what are suitable for peculiar localities—what new sorts give promise of being worthy of dissemination—and, especially, what are adapted to general cultivation.

The remarkable and gratifying progress which has been attained, of late years, in this branch of rural industry, is, in no small degree, attributable to the establishment and salutary influences of Horticultural and Pomological Societies. It is, therefore, desirable that every state and territory of the Union should be represented in this convention, so that the advantages resulting from the meeting may be generally and widely diffused. Held, as it will be, at a convenient point between the Eastern States and the Western, easily accessible from the South, and also from the Canadas, it is anticipated that the attendance will be larger than on any former occasion, and the beneficial results to the American farmer and gardener proportionally increased.

All Pomological, Horticultural, Agricultural, and other kindred associations of the United States, and of the British Provinces, are requested to send such number of delegates as they may deem expedient; and nurserymen, and all other persons interested in the cultivation of fruit, are invited to be present, and to participate in the deliberations of the convention.

In order to increase as much as possible the utility of the occasion, and to facilitate business, members and delegates are requested to forward specimens of fruits grown in their respective districts, and esteemed worthy of notice; also, papers descriptive of their mode of cultivation—of diseases and insects injurious to vegetation—of remedies for the same, and also to communicate whatever may aid in promoting the objects of the meeting. Each contributor is requested to make out a complete list of his specimens, and present the same with his fruit, that a report of all the varieties entered may be submitted to the meeting as soon as practicable after its organization.

Packages of fruits and communications may be addressed as follows: "For the American Pomological Society, care of W. A. Reynolds, Esq., Chairman Com. of Arrangements, Rochester, N. Y."

Delegations will please forward certificates of their appointment, either to the above, or to the undersigned at Boston.

Gentlemen desirous of becoming members of the Society, and of receiving its Transactions, may do so by remitting to the Treasurer, Thomas P. James, Esq., Philadelphia, Penn., the admission fee of two dollars, for *biennial*, or twenty dollars for *life* membership. MARSHAL P. WILDER, *Pres.*

H. W. S. CLEVELAND, *Sec.*

BOSTON, Mass., March 15, 1856.

ON WOOL-GROWING.

TO THE PRESIDENT, VICE-PRESIDENT, AND MEMBERS OF THE WOOL-GROWERS' ASSOCIATION OF WESTERN NEW-YORK.

GENTLEMEN:—I have received a copy of your circular, announcing the intention to hold your second annual Fair at "Penn Yan, Yates County," on the 27th, 28th and 29th days of May next.

Nothing could afford me more pleasure than to attend that meeting, but fearing that I shall be prevented by want of health, I will comply with your request to aid in promoting the objects of the Association. I can send for your inspection

1st. A general collection of *Foreign Fleece*, in which you will find choice specimens from almost every country in the world which has any pretensions to sheep breeding.

2d. Particular specimens of all the best wools of Saxony, presented to me by the King of that fine wool-growing country.

3d. Specimens of the fine wool of Prussia and Prussian Silesia, sent to me by the King of Prussia.

4th. Specimens of some of the most valuable fabrics manufactured from either wool alone or wool mixed with hair, silk, cotton, or other materials.

The only condition I wish to make is, that you will bear the expenses of the conveyance to Penn Yan and back, and see that they receive no injury while there. To these specimens, if you conclude to have them, I beg leave to call your particular attention, for many reasons.

In the first place, to point out to you an error into which your committee of arrangement have, inadvertently, fallen, in retaining the unscientific names of "long and middle-wooled sheep," which were adopted in England before the specific differences between "sheep's *hair*" and "sheep's *wool*" were pointed out by me; and which, since that time, have been disused by the learned in *that* country.

I shall present you with a copy of my *Trichologia Mammalium*, in the front of which you will see drawings of the three species of Men, with specimens of their pile, by which you will perceive that the heads of the two first are covered with *hair*, and that of the third with *wool*.

I also bespeak your attention to page 153, where you will find drawing, of two species of sheep, with specimens of the *hair* and *wool* of each respectively.

I shall next claim your notice to page 8, where I have endeavored to point out the differences between hair and wool, and to page 184, where the most important property of sheep's wool, viz., that of *felting* and *fulling*, and the most important property of sheep's *hair*, viz., that of *not shrinking*, are pointed out. These distinctions being well understood, you will be able to appreciate the importance of the specimens of fleece contained in the above collections, and be better prepared for judging what breeds of sheep should be introduced and propagated in your State.

It is with no small degree of pleasure that I find, from numerous letters received from Europe, (where my work has been circulated,) that the position I have been so long and so ardently laboring to maintain, viz., that "IT IS INDISPENSABLY NECESSARY TO SUCCESSFUL SHEEP-BREEDING NOT ONLY TO COMMENCE WITH A PURE BREED, BUT SCRUPULOUSLY TO AVOID THE CROSSING OF TWO SPECIES," is universally admitted to be correct; but it is any thing but flattering to notice that the respectable committee of arrangements of your highly respectable Association have passed it by unnoticed. In their programme not only is there no allusion whatever made to the all-important subject of *purity of breed*; but premiums have been offered for *hybrids*.

The earliest authentic account we have of the breeding of the *Merino* comes from Spain. In the language of that country the word, as applied to sheep, means "moving from pasture to pasture," from the practice there prevailing of driving the flocks, semi-annually, from one part of the kingdom to another, in search of their natural food. From Spain this invaluable stock was introduced into many parts of Germany and France.* In Saxony, Prussia, Prussian Silesia, &c., they were bred separately from the native sheep of those countries, which is the reason why their fleece is so highly valued; but in France they were mixed with the common sheep of that country, and consequently what are termed "*French Merinos*," and which of late have obtained a pseudo renown in the United States, are HYBRIDS—nothing but hybrids.

That, upon a subject so important to the wool-growers of the United States, there may be left no room for cavil, I ask permission to introduce, here, a few passages from a French author.

Monsieur Roche Lubin, in a work entitled "Manuel de L'eleveur de Bêtes a Laine," published in Paris in 1854, thus expresses himself in regard to the French races of sheep.

"THE MERINO RACE.—Body cylindrical, thick and short; head large and square; forehead almost straight; eye bright; horns almost always spiral; neck short, large and often furnished with a dew-lap; the breast ample, shoulders round; back horizontal and flat; extremities short and strong; testicles large, pendent, and separated by a furrow; fleece weighing, generally, about four kilogrammes; the strands of wool zigzag, tenacious, elastic, strong and soft. At this time a great portion of this wool is fit for carding. Lastly, the merino and the hybrid merinos furnish 56 in the hundred of net meat. This race has formed in France four principal sub-races, viz: (1.) The Rambouillet Race.—They are very vigorous, and produce a fleece, in the yolk, of eight or nine kilogrammes. The fleece is longer, thicker, and less [jarreuse] than that of the pure race; and the flesh weighs more; they are much esteemed by the cultivators of the North. (2d.) The race of Naz.—They are smaller than the preceding race, their fleece is generally superfine, and it extends over the whole body; they have large horns, but they are without the dew-lap; for butcher's meat they are inferior to the Rambouillet race. (3d.) The race of Perpignan, the origin of which was formed by Gilbert,) is comprised by M. de Gasparin in "the inferior race;" in fact it is distinguished from the other classes by the denomination of the "short and thick race;" the length of the extremities are almost destitute of wool, and the absence of horns and dew-laps.

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* In 1786.

(4th.) THE RACE OF MAUCHAMP.—This race, for which we are indebted to an honorable cultivator of the department of Aisne, M. Graux, is rather a new type of Merino than a sub-race. The fleece is straight, smooth, silky, resembling in form the long English fleece, but infinitely softer and finer; it sells at 8 francs the kilogramme. These sheep, although well fed, furnish but little meat. Generally the raising of Merinos is difficult, as well from the care necessary to be taken of them as from the food they require; they are more diposed to diseases than the native races; they are less *prolific; the ewes producing* fewer lambs than those of the country, and *they are not such good* milkers. Thus the pure Merino race, which cannot *maintain itself in all its* qualities, except by appropriate treatment and by well-understood *attentions*, is fit only for crossing and perfecting *our races.* It has been proved *that hybrids* are less troublesome and that they produce as much wool and meat as the pure blood; also, this species, in the actual state of our agriculture, is the most productive of wool-producing animals. Berry, Beauce, Perche, Picardie, Normandie, Bresse, and moreover the province de l'Ain, furnish numerous examples; but it must be observed that the perfecting of the races of these countries has been favored by improvements introduced into French agriculture. It is also necessary to remark that, in order to hope for the improvement of the races of Brittany, of Poiton, of Sain, of Lemoirsin, of Quercy, of Auvergne, of Haute-Loire, of Loire, of Dauphiny, etc., (races which amount to the enormous number of thirteen or fourteen millions individuals, furnishing little meat and wool of medium quality,) it is indispensable that the cultivators of these provinces perfectionate, previously, their forage culture; thus to be able better to maintain the sheepfold.

THE RACE OF LARZAC.—This race, which multiplies itself in a remarkable manner, is of a very ancient Spanish origin; it originated on the Larzca, a vast calcareous district situated between the confines of the provinces of Aveyron and Hérault.

Notwithstanding the modifications which it has suffered, the race has always recommended itself by the shape of the head, by its size, by its long structure, by the regular form of its body, by the size of its teats, by its oily and zigzag fleece, and by its great fitness for the production of milk, which is generally used for the making of the Roquefort cheese, which is produced at the present time to the amount of 1,200,000 kilogrammes. The form of the udder is well developed; I have applied the monkey system to this race, of which hereafter I will publish results. Since the extension of artificial meadows every lamb of this precious race produces annually to its owner the moderate profit net of 20 francs; now by the assistance of a better regimen and perfect drainage ought we not to try to improve our woolen goods by the introduction of the long-wooled sheep without the fear of injuring the essential quality of an excellent milkage. Already from notes taken by two distinguished agriculturists, Mm. Rodat d'Olemps and Randon-du-Landre, I feel myself authorized to foretell that with the crossings of the rams of New-Kent our own sheep, without becoming worse milkers, have furnished a fleece more abundant and of double value."

After reading the foregoing extract we presume that no person will deny that the so-called "*French Merinos*" are nothing but hybrids.

In regard to the laws of hybridism the following quotation will be all that is necessary:

"The law of hybridity, as a test of species, is now better understood than it was in the days when Linnæus and Buffon wrote. The latter supposed that all animals that would produce offspring among each other, were of one species; thus he reduced all the mammalia to about thirty-eight families. Rudolphi, Hamilton Smith, Dr. Morton, and others, believed that many opposite species would produce a prolific offspring, which would propagate inter se, and hence they supposed that the varieties of our domesticated animals, and even some among wild species, were the products of two distinct species. That different species of tamed animals placed with each other in confinement will produce offspring is a fact known for centuries, *but that they ever have produced or can perpetuate a race, we deny*, and call for the proofs. All that have hitherto been given are quite unsatisfactory and cannot be sustained. We but recently ascertained that Dr. Morton had collected nearly all his cases of hybridity, published in Silliman's Journal, from Rudolphi. We are indebted to the kindness of some unknown friend in Germany for the book. We find, however, that in addition to its being full of errors that have since been exploded, Rudolphi collected his information from various scraps that had from time to time appeared in print, and some from doubtful sources, without having made a single personal observation on the subject. But if even every fact he stated should be authenticated, it would merely amount to this—*that some hybrids, when mated to a full blood of one or other of the original species, will produce;* but that HYBRIDS WILL NOT BREED WITH HYBRIDS—hence *no new race is propagated.* Our theory is, that in a wild state these associations seldom or never occur. When they do occur among animals placed under constraint, the offspring is either sterile, like the mule, or it must resort, not to a hybrid, but to one or the other of the original species. Dr. Morton was only able to produce two examples among wild breeds to show that hybrids had propagated races. When we proved to him that they were not hybrids but true species, the one described by Yarrell, and the other by Gould, of England, he admitted the mistake, and in this Journal publicly corrected the error. In domesticated animals hybridity occurs, but NO FAMILY OF HYBRIDS CAN INTER-SE PROPAGATE A RACE—thus proving that God alone is the creator of species."—DR. BACKMAN *in the Southern Medical Journal.*

I am, Gentlemen, your obedient servant,

PHILADELPHIA. P. A. BROWNE.

BALTIMORE AND OHIO RAILROAD.—We have prepared an article in reference to the peculiar attractions possessed by this road for all lovers of fine scenery, as well as for those who are disposed to patronize especial liberality and efficiency in the management of railroads. But our printer notifies us that our pages are full, and we are obliged to defer a more extended notice till another month.

THE PENNSYLVANIA RAILROAD, we had also designed to notice, in a similar manner. But this too must also be postponed till our May number.

FEEDING CATTLE.

It is one of the standing questions of the day, in many communities, Will it pay to fatten cattle? and what does it cost to raise or fatten pork, etc.?

Prices vary so much in the same State, that one man's experience can be no test of another's ability, except in relation to quantities consumed. The value of the feed consumed must be calculated by each man for himself. All experience is useful in the matter of the feed used, and hence we give below the experience of a Western (Ohio) drover, Mr. Sears, of Litchfield, Ohio. He writes like a man of good judgment (in the *Ohio Farmer*,) and we copy from that paper his statement of his own debit and credit for the years 1853 and 1854. He modestly says of himself:—"I do not consider myself an extensive operator because I fed sixty head of cattle. My object was to turn my hay and grain to the best advantage." *In many sections of the country, if no profit is received from cattle-raising except to get a fair price for hay, it may still be a grand operation to carry on this business extensively.* But for the figures:

DEBIT.

1853—Dec. 1st—To 60 head of cattle—average weight, 1,050 lbs.; whole weight 63,000 lbs., at 3 cts. per lb.	$1,890
To one-half bush. corn per head, for 136 days, making 4,080 bush., at 20 cts.	816
To 15 lbs. of hay per head, for 136 days, making 61 1-5 tons, at $5 per ton,	306
To pasturing 60 head for eight weeks, at 18 3-4 cts. per week,	90
Cost of cattle,	$3,102

CREDIT.

By 60 head of cattle—average weight 1,300 lbs.; making 78,000 lbs., at 4 cts.,	$3,120
To balance in pocket, for extra labor, and *no* stabling,	$18

DEBIT.

1854—Dec. 1st—To 60 head of cattle, average weight 1,025 lbs., making 61,500 lbs., at 3 cts,	$1,845 00
To 3½ qts. of corn meal per head, for 136 days, making 892½ bush., at 50 cents per bush., making	446 25
To 20 lbs. hay per head, for 136 days, making 81⅗ tons, at $5 per ton,	408 00
To pasturing 8 weeks, at 18¾ cents,	90 00
Total,	$2,789 25

CREDIT.

By 60 head of cattle, weighing 1,400 lbs. each, making 84,000 lbs., at 4½ cents per lb.,	$3,780 00
To balance in pocket for extra labor, *ground feed*, and stabling,	$990 75

FOR THE PLOUGH, THE LOOM AND THE ANVIL.

THE OSIER CULTURE;—PROFITS, AND MACHINE FOR PEELING.

Mr. Editor:—In the spring of 1849 we procured a few plants of the Osier willow, with many other varieties of foreign trees, with a design of testing their adaptation to our *soil* and *climate*. Many of the less hardy kinds died the following winter. The Osier proved perfectly healthy the following spring. Being convinced that it would flourish in this climate, in the spring of 1851 we procured a few hundred cuttings, and stuck them in rows three feet apart, and about seven inches apart in the row. The soil had been cultivated to corn the season previous; but it was rather moist, being a deep loam which never suffered from drouth. We set 500 cuttings in five rows. The rows were sixty feet in length, were well hoed the first summer, and they grew from two to four feet in height. Cut them to within three inches of the ground the next spring, and cultivate them in May. The second season they will average from four to seven feet in height. We cut them again, and the third time, and they grew eight feet, and on the fourth nine feet. Last summer a few grew ten feet, and the whole would average from seven to nine feet. In the fall of 1854 I cut and weighed one row, sixty inches by three, and it weighed when green 180 lbs., which was at the rate of twenty-one tons to the acre. We peeled a portion of them to ascertain what per cent. they would shrink by peeling and drying, and we judged they shrank two-thirds, (or 67 per cent.,) which would leave seven tons of peeled willow to the acre. This, at five cents a pound, would be $700 for the product of one acre. We have not applied any manure to the land, neither have we hoed them since May of the second year.

The ground is perfectly shaded, and grass or weeds cannot grow. I judge the present crop greater than the one of 1854, but have not cut them yet.

This willow is very slim, free from limbs or knots, and very tough. I can tie a knot in it as well as in twine, without breaking it.

I have never seen any willow plantation which flourished better than ours, and judging from reports from various parts of the world, we may compete with any part of it in growing it for manufacturing purposes.

Our variety is known as *Salix viminalis*, and I think it the best variety for baskets. I have never seen any other variety as tough, and so perfectly free from branches, and as small in proportion to its length.

My attention was called to the subject of growing willows for baskets in 1852, by reading an article in the Patent-office report on the cultivation of Osiers, in which the writer says that, "from the best information he can obtain, there are from four to five million dollars worth of willows annually imported into this country from France and Germany." He also informs us that the average price paid for it was from $100 to $140 per ton; that it cost about $30 per ton to peel it; and that the demand was greater than the supply.

A correspondent of the Massachusetts *Ploughman*, in June 1853, spoke very highly of Americans engaging in the willow growing, and all the objection he presented was the cost of peeling.

In a conversation with S. W. Jewett, Esq., of Weybridge, Vt., after he had examined the resources of Europe, he assured me that there was no danger of over supplying the market; that it had not been done in Europe, and there was no danger of its being over supplied here.

Peeling formerly was done by hand, which greatly increased the expense, but recently Mr. Geo. J. Colby, of Janesville, Vt., has invented a machine for peeling, which greatly reduces the expense, a representation of which I send you; also his description of the machine, which you can lay before the readers of your valuable journal if you think it for their benefit.

We can supply persons wishing to purchase cuttings this spring, and Mr. Geo. J. Colby, of Janesville, will furnish them for the extreme low rates of $2 00 per thousand when 50,000 are ordered at one time, and in smaller quantities at a moderate advance from the wholesale prices.

BRAINTREE, Vt., March 12, 1856. LEWIS H. SPEAR.

COPPER SMELTING.

THE *Commercial Gazette* of Cleveland, O., (an excellent paper,) contains the following:

Some months since we published some statistics in reference to Copper smelting, which have been copied by a number of commercial and scientific journals, making some valuable additions to the statement.

We now republish the substance of our previous remarks, with such valuable improvements and additions as the article has gathered in going the rounds.

"There are copper smelting works in the United States, situated at Cleveland, O., Pittsburg, Pa., Baltimore, Md., Detroit, Mich., Boston, Mass., and one in Georgia (the name of the latter place we have not obtained.) At these works the quantity produced last year about 13,000 tons; or the fifth-eenth part of that smelted in the valley of Swansea. The Lake Superior ores are smelted at Detroit, Pittsburg, and Cleveland, and are said to yield a great quantity of silver, which makes the smelting of them profitable. This business has been steadily and rapidly increasing during the past ten years, and it must increase until the United States becomes the great copper smelting country. Two things only are required for this, an abundance of good ores, or native metal, and plenty of cheap coal. The native metal and ores are found in inexhaustless quantities, and our coal fields are the largest on the globe. As there is no coal in the Lake Superior region, ore will have to be exported thence to the nearest navigable point where coal can be obtained cheapest. An improvement in smelting copper ores is said to have lately been introduced into the "Eureka Mining Co.," Georgia, by which from a small furnace, using about five cords wood per day, two tons of pig copper containing 60 per cent of pure metal, are obtained from ores containing only 14 per cent of metal.

East Tennesee is a great copper region; no less than 14,191 tons of rough ore being mined there last year. About two-thirds of the copper used in our country is the product of our mines; the remaining third is imported chiefly in pigs from Chili.

CIRCULAR OF N. Y. HARDWARE DEALERS.

THE jobbers of New-York engaged in the hardware business have issued a circular, the importance of which, in its ultimate consequences, we fear they have not sufficiently considered. It is very severely criticised in the *Hardwareman's Newspaper*, with what justice may be judged only by a careful view of the entire subject of home manufacture in its various relations. We have not time, in this number, to go extensively into this matter, as we should like to do, but we are persuaded that it is hasty, (however long the time since it was first contemplated,) ill-judged, and calculated seriously to injure the manufacture of such wares in our country.

The circular is below, to which we annex some of the comments of the journal already named, with some additional suggestions of our own.

"CIRCULAR.

"At a meeting of the Hardware Dealers' Board of Trade, of the city of New-York, it was unanimously *Resolved.* 'That in ordering goods from the Manufacturers of American Hardware, we will, as far as practicable, have the name and residence of the manufacturers left off, both from the articles and labels, or if it be desirable to have the maker's name thereon, that we will in all cases request that the maker's residence be left off, both from the article and label.'

'"*Resolved*, That we will give our patronage in preference to such persons or manufacturers as favor our views, and who decline or discontinue to interfere with the regular course of trade.'"

This circular is thus treated by the editor of the *Hardwareman's Newspaper.*

"The design of these resolutions is of course transparent, and needs neither argument nor illustration. It is simply this: This body aims at the entire control of the hardware manufactures of the country, and therefore insists that American hardware goods shall be made *anonymously*, and sold exclusively through them, and they endeavor to enforce this object by the threat contained in their second resolution, that they will withhold their 'patronage' from manufacturers who decline acquiescence in their views.

"The first part of the plan, then, by which these forty-seven dealers design to secure to themselves the monopoly of the sale of American manufactured hardware, is to have the makers name left off the articles he manufactures. Let us see what would be the practical operation of this, in its effect upon the *quality* of American goods.

"The identification of the manufacturer with the article produced has two effects. It is a stimulus to the maker, to secure a reputation for, and a confidence in, the goods which he manufactures; and it is, at the same time, a guaranty to the merchant, of the quality of the articles he purchases. The ambition for distinction in the superiority and excellence of his productions, is perhaps the strongest, as it is most honorable, incentive to a manufacturer to improve the quality of his wares. He knows that the establishment of a character for himself, is the surest and the shortest method of making his business at once permanent and profitable; and in its earlier stages, if he be a discreet and far-seeing man, he is more desirous to earn a reputation than to make money—knowing that if he does so, his goods will continually secure a larger demand and better prices than those of doubtful or unknown not to say inferior, character. Why have we county and State organizations for the exhibition of industrial skill, if it be not to excite an honorable emulation amongst manufacturers? Why was it that four times within five years past the artizans of the world entered into a contest of friendly rivalry, in the various exhibitions of the industry of all nations, which have been held, if the ambition to excel was not a powerful incitement to improvement in the breast of the manufacturer? But if the hardware manufacturers of the United States would have the '*patronage*' of the forty-seven jobbers of New-York, they must ignore their own individuality, send out their goods *anonymously*, and furnish an article which, however excellent, can bring them no credit, and establish for them no reputation. Suppose (which is impossible) they meanly and foolishly submitted to this imperious dictation, what would be the effect upon the quality of the goods produced? Can any one doubt that it would be to depreciate and lower it! The effort would then naturally be to make goods at as low a price as possible, to meet the views of the jobbers in whose hands they should place themselves; and, as they had no reputation to sustain, they would not hesitate doing so by sacrificing the quality. Thus would the general character of American goods be lowered in the market, and, in the same degree, would the reputation of imported goods be raised—until by a gradual but certain process, American manufactures would be run into the ground, American industry choked out, and American energy cramped and paralyzed. *And this result is the very object aimed at by this measure.* None know better than the forty-seven signers of this document, that the progress of American manufactures is destructive to their business, and that their only hope of perpetuating the Jobbing Trade is by fettering and hindering domestic, and encouraging and promoting foreign manufactures. The first part of their plan, then, is to have American hardware sent into the market without the maker's name, by which they hope to accomplish these two results: First, to keep other merchants ignorant of the names and localities of manufacturers; and, secondly, *to secure the depreciation of home manufactured goods*, by having them sent into the market anonymously, and therefore without the guaranty of the personal responsibility of the producer.

"But the second part of their plan is, to coërce makers into obedience to their wishes, by the threat to withhold their 'patronage' in case of their non-compliance. We don't like to use the language which suggests itself to us at this insolent proposition to the independent manufacturers of the Eastern and Atlantic States; but we confess we are pleased that the matter is now placed upon a plain and straight footing. We hope the forty-seven jobbers will adhere to their resolution, and we have no doubt that many men who have too much and too long succumbed to them, will, under this insulting provocation, give them a manly defiance, and follow the example of their more successful brethren, who have already sought a legitimate and permanent business with the true merchants of the country, and are now entirely independent of these Eastern Middlemen."

We fully agree with the editor in some of the important points he has raised, but there are other considerations also that may have had an influence in securing the passage of these resolutions.

In certain parts of the community there is a foolish, vain hankering after imported goods. If two new bonnets, or hats for men or women, or two pairs of boots, or two pieces of broadcloth, were laid side by side, each having exactly the same merits in all respects, one being labelled *Paris* and the other as American, most probably the *Paris* stamp would be selected by the first purchaser. Such a proof of *merit* might indeed effect the sale of an *inferior* article at the price of the better of American origin.

Hardware goods are no doubt affected by this same silly, childish, vain, foppish conceit—a conceit that often taxes our patience not a little. The ironwares manufactured by our own skillful artists would perhaps sell better ofttimes if an unprincipled salesman could only call them English, just imported, or even wipe out all evidence to the contrary.

But it is true, no doubt, that New-York jobbers are in fact interested in keeping down American manufactures. The reason is obvious. Country retailers can trade directly with the manufacturer, and thus the services of these MIDDLEMEN be dispensed with, while the importer is a necessary link between the foreign maker and the retailer. How far this motive enters into this movement can only be judged by those who know the men and their principles.

Nor would the name be so useful as a means of connecting the retailer and manufacturer, if the residence were not stamped. The inference is certainly very obvious, if it is not just, that this consideration was not overlooked, when they indicate in their circular that the omission of the maker's residence is of still more consequence than that of his name. The latter is essential. Why is this point made by these gentlemen?

But there is something more involved here than the amount of income of some fifty firms. This resolution bears directly upon the great subject of American manufactures, and its influence, undeniably, we think, is unfavorable to their success, and indeed so far as it has any influence, ruinous. Its tendency is to ignore even the existence of this branch of American industry. It is a virtual announcement that manufacturers, if they do live and breathe and act, must do so under cover, or at least in a shadow. They may work, indeed, but the best and most directed evidence that they do is to be blotted out of existence. This is singular ground for a true son of America to occupy. Jonathan has been accustomed to hoist his flag at mast head, and to proclaim to all the world that he himself stands on the deck and is ready to receive company and answer all civil questions. He does so in the presence of all nations, the strongest as well as the weakest. But this circular threatens —we know not what, if any of these men raise their blue buntin in sight of other people.

If it is replied to this that it is not the stamp of *American* which is objected to, but the name and exact location of the maker, then we say this is as bad, and far more mean, for it would then be obvious that the whole object was to secure the trade to themselves, forbidding all direct communication between the maker and the country retailer. It would thus become a security against purchases by the retailer from the manufacturer, which should exclude the agency of these middlemen. These gentlemen will be very slow to admit any such despicable motive as this. But we cannot conceive of any other than one of those we have here suggested.

That the omission of the maker's name would tend to a deterioration of the quality of the wares, is also perfectly obvious. Hence it is beyond question a movement productive of absolute evil, and it becomes its defenders to state what good they hope to effect in offset.

But this suggests another thought. The second resolution says that they will not give their patronage to those "who decline to comply to their demand or will discontinue to interfere with the regular course of trade." This, of course, refers to the demand made in the first resolution, and it is strange to us that these sagacious and clear-sighted men did not perceive that it was themselves who are "interfering with the regular course of trade." Is it not always the case that the makers of good wares append their names to their packages? Does not this custom prevail from the manufacturer of pills to the makers of steam engines? How absurd, how ridiculous it would seem for the owners of steamboats to say "we will patronize no machinist who stamps his name on his engines? Why our boot-makers, hat-makers, and the whole array of producers, one would think, would rise up in throngs like ghosts in a churchyard, and cry out at such an assumption, and would feel in their hearts that some very singular and unworthy motive must have suggested such folly. But we cannot enlarge. We think this circular was hastily, thoughtlessly adopted, and will be most disastrous in its results, if carried out in practice. We may refer again to this subject.

STATISTICS OF THE COD FISHERY AT PROVINCETOWN, MASS.

TOTAL number of vessels employed 84, with an *aggregate tonnage* of 7605 tons, manned by nearly 800 seaman, and possessing an *aggregate value* including outfits of $275,000. Compared with the previous year, *this return* exhibits a diminution of three vessels, with the same amount of tonnage employed; over the year of 1853 it shows an addition of two vessels and 527 tons, and over the year 1852, an increase of nineteen vessels and 2375 tons in the aggregate. The average value of the vessels employed has also constantly increased, by annually substituting larger and more costly vessels for those of an inferior size. The largest vessel engaged in fishing the past season was a schooner of 131 tons.

The importations of 1855 consist as follows: Of codfish, 76,914 quintals, and of cod oil, 806 barrels, which fall short of 1854 about one-eight, and of those of 1853 about one-third, while they exceed those of 1852 nearly one-sixth. The heaviest importations were in 1854, when nearly every vessel returned with a full fare. But owing to the constantly increasing scarcity of fish, our importations do not keep pace with our increasing tonnage. This fact will be perceived by comparing the yearly imports with the yearly tonnage employed. Thus in 1855 were caught to each ton of shipping engaged, nine quintals and thirty-six pounds of codfish, against ten quintals and fifty-eight pounds in 1854; ten quintals and forty-two pounds in 1853, and eleven quintals and fifty-seven pounds in 1852. The obvious tendency of such a decline is to limit the annual import of each vessel in a like proportion. Vessels, therefore, which formerly brought in 1000 quintals of fish in a voyage of four months, are now able to obtain only seven-eighths as many during the entire season.

The price of fish for the few past years has steadily augmented, the average price in 1855 being $3 52 per quintal, against $3 24 in 1854, and $3 22 in 1853. The price of cod oil has likewise increased of late, the average price during the past year being 68 cents per gallon. From the scarcity of fish, before alluded to, and an increased demand in the market, the present price must be upheld. The value of importations are as follows:

Cod fish, - - - - - - -	$249,617 28
" Oil, - - - - - - -	17,276 08
Total value of import, - - - -	$266,893 36

The amount of "bounty" obtained by the fishermen collectively the past year was $27,363,90, against an equal amount in 1854, $25,946 in 1853, and $20,434 in 1852.

During the past year 84,000 bushels of salt were expended, against 98,000 in 1854.

The average length of the fishing voyages the past season was 4 months and 15 days.

The population of Provincetown in 1850 was 3,157.

REVOLVING FIRE-ARMS—COLT'S PATENT.

OUR readers must not suppose, from the caption just penned, that we are under the influence of a high war fever; we are as peaceable as any lamb, and regard discretion as much the better part of valor. We have as good a defense against suspicion of any murderous intent as had the Friend who took part in the discussion of the merits of Colt's pistols before the Institution of Civil Engineers in England. After several military gentlemen and others had highly commended the merits of this patent as a most efficient weapon both of attack and defense, and one which had proved itself worthy of confidence in not a few instances in actual war, a Friend remarked that he thought "all weapons might be dispensed with, except for protection against wild beasts." So we may suggest that without regard to their use in war, or in circumstances of peculiar personal exposure, it is of very great importance to have fire-arms which shall be easily managed, safe in handling, and sure and exact in discharge. So far as we can discover, all these requisites are especially descriptive of Colt's revolvers.

The idea of a revolving breech is not a modern one. A match-lock gun in the Tower of London is probably the invention of the 15th century. It has four chambers, mounted on an arbor parallel with the barrel and welded to it. Another specimen, in the same collection, is furnished with a Pyrites wheel lock, and one priming pan is common to the six chambers of the revolving breech.

In the "Musée d'Artillerie," at Paris, are two specimens of match-lock guns, with revolving breeches, each having eight chambers, rotated by the hand, the cover of the priming magazines requiring to be pushed back by the finger before firing.

Another ancient form of this weapon, brought to England from India, closely resembles that first mentioned. The breech has five chambers, each having a priming pan with a swing cover.

There is also, in Paris, another gun with eight chambers, differing in the arrangement of the touch-holes from the preceding, having one main priming tube extending from the pan to the rear of the revolving chambers, with eight corresponding tubes extending from the rear to within a short distance of the front end, where an orifice is pierced into each chamber for the purpose of igniting the charge immediately behind the bullet, obliging the charge to burn backwards towards the breech. This belongs to the seventeenth century.

Other inventions much more recent are well known, which possess more or less merit, but compared with the contrivances of our own times are, of course, exceedingly defective.

Among the first American inventions of revolving fire-arms was a rotating breach with a flint lock, patented by Elisha H. Collier, in 1818, and one contrived by a Mr. Wheeler, of Boston, and patented by Cornelius Cooledge in 1819. The first invention of Mr. Colt was in 1830. Various improvements have since been made in their construction, and they are now admitted to be the most effective, for actual service, of all the ingenious inventions of the day.

These arms were used in the Florida war with great success. The Indians' as is well known, are very expert in the use of fire-arms, and could meet and resist the attack of white men with great vigor. But when they saw that their enemies could discharge their weapons six times without re-loading, they were persuaded that the white men had some valuable secret, some "medicine" far beyond their attainment, and they were induced to surrender. Col. Chas. May says "ten men with Colt's pistols in their belts, and who understand their use, can go anywhere and keep off almost *any force.* I should not hesitate, with ten men, armed with these *pistols, to go anywhere* across the plains."

Major Thompson, inspector of fire-arms for the U. S. army says: "*After* much firing and examination, the Board of Ordinance adopted *Col. Colt's* pistol for the service as the best weapon presented for their *consideration.*"

The reputation of this invention is as great abroad as in this country. *It* is adopted by a portion, at least, of the British army, and is in very extensive use all over the world. There are other pistols which possess particular merits to as great an extent as these. For mere pastime and for personal protection under ordinary circumstances they may be equally serviceable, We described one in a late number of our journal. But for quickness of loading, in an actual engagement, and facility of managing, and for accuracy in firing, probably no invention approaches this. At least, we have seen none.

Mr. Colt has an establishment at Hartford, Conn., for the manufacture of these arms. Four-fifths of the work is done by machinery. So extensive and so complete are these works, that two hundred and fifty pistols have been finished per day, or fifteen hundred arms per week, by less than five hundred work-people. Col. Colt has also a similar establishment at Thames Bank, near Vauxhall Bridge, London, in a building which was occupied in making the mouldings, etc., for the new palace at Westminister.

Newton's London Journal says:

> The Great Exhibition of 1851 made Europe first acquainted with the repeating arm, known in the United States as "Colt's Revolver." At that time, the importation, for sale, of fire-arms, of foreign make, was strictly prohibited; and although the revolver obtained some favor from military men, yet it was not allowed to be purchased, even by officers ordered on foreign service, without a special permit from the Treasury. At a later period in the year 1851, the Caffres having proved exceedingly troublesome to the Government, some three hundred of these weapons were sent to the Cape of Good Hope, to test their efficiency on the savage tribes in the interior. This purchase was, at the best, but small encouragement; yet it determined Colonel Colt to establish an armory in this country, by the outlay of many thousands pounds, for the manufacture, not of fire-arms generally, but exclusively of a weapon which had its reputation to win in Europe,—and that against no

mean competition. What a contrast this daring course—in respect of a weapon, for which, as yet, there was no demand—presents to that pursued by the trade in London and Birmingham, we shall see in the sequel, when we revert to the Report of the Select Committee, appointed in 1854, "to consider the cheapest, most expeditious, and most efficient mode of providing small arms for Her Majesty's service."

"The factory at Thames Bank is, as we understand, but small, in comparison with the Colonel's works at Hartford, Connecticut, U. S.; but, according to our notions, it presents very respectable dimensions; and as an illustration of automatic manufacture, notwithstanding the newness of the system, it is scarcely to be surpassed by any branch of trade with which we are acquainted. The machinery may be divided under four classes, viz.,—that of forging, turning, boring, and milling. The latter three are comprised for the most part on the ground and first floors of the factory, which is a substantial brick building measuring some 350 feet in length, and containing three floors besides the basement. The basement of this building is occupied with planing machines and other heavy mechanism employed in constructing new tools, effecting repairs, &c.; and in the top floor or loft, the assembling of the work is effected, and the final touches are given by skilled workmen to the different parts of the arm. An extensive range of sheds in the factory yard is devoted to the use of the carpenters and smiths. The number of hands employed in the works, reckoning men, women, and boys, somewhat exceeds two hundred. They are divided into groups, and were at first supervised by American workmen from Hartford, who, being paid by contract (each item of the pistol having a determined value,) were thus personally interested in the speed of production: but these posts are now chiefly occupied by the most diligent and steady of the English workmen who first made acquaintance with machinery at the factory'.'

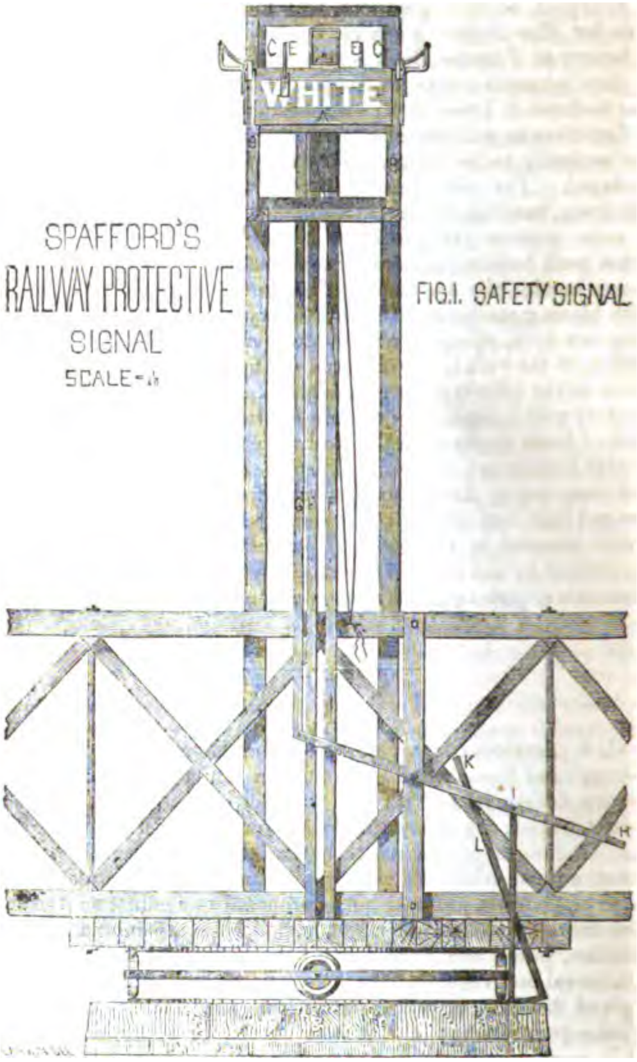
THE U. S. AGRICULTURAL SOCIETY.—The Executive Committee of the U. S. Agricultural Society had a meeting in Philadelphia last week. The Philadelphia *Ledger* says of it:

"Colonel Wilder, the efficient and distinguished chief of the Association, presided. The object of the meeting was to arrange certain preliminaries for the next annual exhibition, which has been fixed to take place in this city on the 7th of October, and which it is proposed to conduct on a scale of unexampled liberality and splendor. It was decided to embrace, as objects of the exhibition, horses and horned cattle, swine and sheep, agricultural implements, cereal and vegetable products, poultry, and native fruits and wines.

"A grand banquet, in which ladies will participate, was also settled as part of the programme; and it was agreed to appropriate $12,000 or $15,000 in premiums."

The people of that city are arranging for an exhibition which will eclipse that held in Boston last fall. They have subscribed $15,000 as a guaranty fund, and appointed a committee of arrangements of forty persons, embracing some of the leading men of the different professions. We do not see how they can exceed in the excellency of arrangements the show in Boston, except they will secure fair weather for each day. This would be a feature of immense value.

RAILWAY SIGNALS.



SPAFFORD'S RAILWAY PROTECTIVE SIGNAL SCALE =

FIG. 1. SAFETY SIGNAL

The importance of additional security on our railroads cannot be overrated. Whoever will devise a thorough system of signals, which will be easily managed, and instantly perceived and understood, at suitable distances at all times, will confer an immense benefit on the public. Numerous plans have been devised, with many of which we are familiar, but some of them no doubt have failed to attract our notice.

A small pamphlet has recently been sent to us containing an entirely novel form of signals for such use, which certainly has strong claims to favor. We publish below as full a statement of it as our limits will permit. We only detain the reader long enough to commend the skill and energy displayed in the management of the Philadelphia, Wilmington and Baltimore Railroad, where these signals are now in operation, under the supervision of S. W. FELTON, Esq. He is not only an accomplished engineer but thoroughly understands the details of railroad operations, as well in their bearings upon the interests of the company, and also in promoting the convenience of the public. But we let the pamphlet speak for itself. It is prepared by Mr. Franklin E. Felton.

The writer first alludes to the defects of certain systems of signals now in use. He says:

"In the first place, the compensation given to signal-men is so slight that none but men of limited capacity will accept the situation. In the second place, it not unfrequently happens that in times of danger, men lose their presence of mind, and are incapable of acting with discretion. The instances are by no means rare of a signal-man, startled by the unexpected approach of a train, becoming so confused as to exhibit a signal of safety, when the occasion demand the signal of danger, and thus a train has been thrown from the track or precipitated into a river. Some two years since an accident of this nature occurred on the Philadelphia, Wilmington and Baltimore Railroad. A draw tender while waiting for a night train, feeling somewhat fatigued with the labors of the day, determined on taking a quiet nap. He had previously opened the draw in order that vessels might pass through without molesting him. Being suddenly awakened from his slumber by the noise of the approaching train, in the confusion of the moment he sprang to his feet, and seizing his lantern, which unfortunately was a white one, waved it across the track. The engine-driver seeing the signal of safety proceeded on his way, and the whole train was precipitated into the river, causing the loss of several lives, and the destruction of a considerable amount of property.

"To obviate the danger inseparably connected with the use of signals dependent in their operation on human power, numerous devices have been proposed, designed to furnish a system of signals free from the objectionable features which characterize those in general use at the present time.

"Within the short space of a month from the occurrence of the melancholy catastrophe at Norwalk on the New-Haven Railroad, no less than twenty improvements in railway signals were presented at the Patent-Office, none of which, however, upon examination were deemed worthy of a patent.

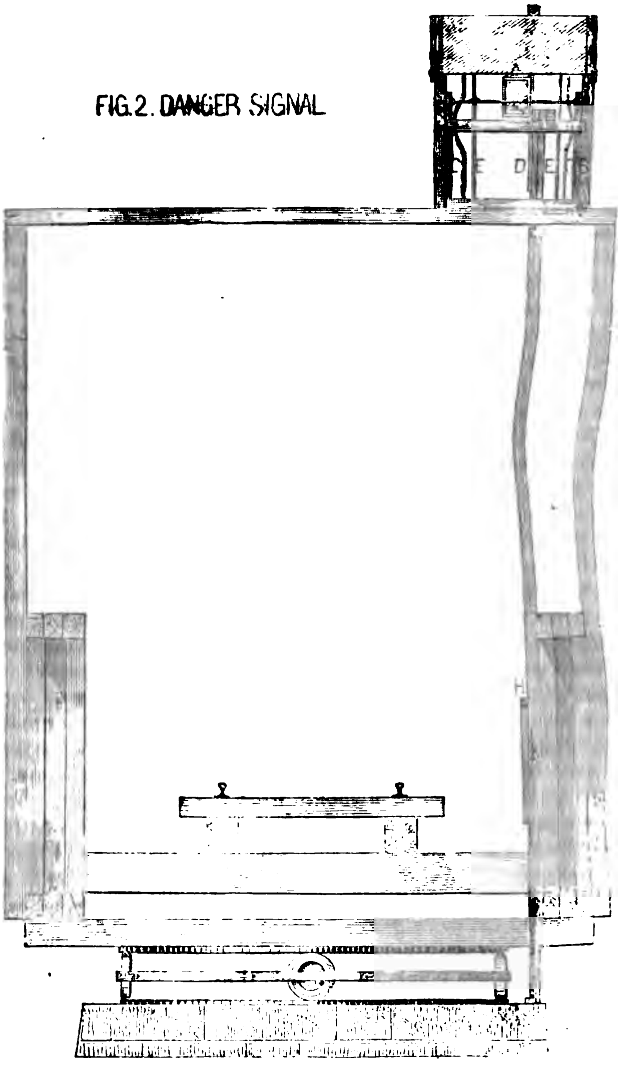
"A recent investigation into the merits of four of the best foreign and domestic devices of railway signals, demonstrates their unfitness to accomplish the purpose for which they were intended."

After discussing these points he proceeds thus:

"The Railway Protective Signal, invented by the late S. L. Spafford, Esq., an Engineer of eminent ability, is free from all the objectionable features characteristic of the various systems as yet devised. From the simplicity of its construction and the substantial character of the materials forming its component parts, there is no liability of its becoming deranged, while its application is not restricted to draw-bridges or switches, like other devices for a similar purpose, but on the contrary it can without difficulty be adapted to any revolving or sliding structure.

"The signals exhibited by this invention are visible at a great distance, and are equally conspicuous by day and night. Both the signals of safety and of danger it displays are positive, and can be made to assume any size or shape desirable, and can be elevated to any height the nature of the locality may require. The engine-driver, accordingly, is informed of the true condition of the track at a safe distance from the bridge or switch, and that so

FIG. 2. DANGER SIGNAL



notwithstand the intervention of a curve or other obstacle between the train and the place of danger.

"In point of economy the Railway Protective Signal takes precedence of all others, since it can be erected at a slight expense, and requires no alteration in the structure to which it is applied, while the cost of keeping it in repair is altogether trivial.

"The crowning merit, however, of the invention consists in its absolute independence of human control and the impossibility of showing an incorrect signal by means of it. If the draw be unlocked or open, or the switch in an unsafe position for the passage of a train, the signal man has no power to exhibit a wrong signal, whereby the safety of the train might be endangered.

"The practical utility of Mr. Spafford's invention has been demonstrated by experience. During the past eighteen months it has been in constant use on nine draw-bridges on the Philadelphia, Wilmington and Baltimore Railroad, and all who are acquainted with its practical operation, from the President of the Company to the engine-drivers, concur in expressing their unqualified approbation of its merits and unhesitating confidence in the infallibility of the signals it displays.

"The record of railroad casualties, for the brief period of seven years, presents a lamentable exhibition of the disastrous consequences attendent on the use of signals operated by the agency of human power.

"From this cause alone, within that time, no less than four hundred lives have been destroyed, and an equal number of persons injured by accidents at draw-bridges, switches, and railroad crossings. The amount of damages paid by the various companies, on whose lines these disasters occurred, as compensation to the victims and their legal representatives, exceeds the sum of three millions of dollars, the Norwalk catastrophe alone having cost the New-Haven Company nearly four hundred thousand dollars. The decrease in business, occasioned by the loss of public confidence arising from a sense of insecurity and danger, as evidenced by such frightful calamities, must have diminished the earnings of these respective companies to an amount equal to the pecuniary damages sustained by them.

"It is gratifying to observe that the duty of Railroad Companies to adopt every practicable measure for attaining safety at draw-bridges is about to be enforced by legislative enactments. The matter has already attracted the attention of the Legislatures of Massachusetts and New-Jersey, and it may confidently be expected that the discussion of the subject, and the adoption of stringent laws, will not only lessen the danger of railroad of traveling, but will also tend to restore confidence in railroad property by preventing the occurrence of those deplorable catastrophies which cause such unspeakable misery to the unfortunate victims and their friends, and the liability to which renders railroad securities of such precarious value.

"In no way can this desirable object be so readily effected as by compelling Railroad Companies to establish a reliable system of signals, certain in their operation, and wholly independent of human control.

"The diagrams show the application and working of the Signal in detail, when attached to a pivot draw. It can, however, with equal facility, be used in connection with any other form of draw, the only change necessary being in the arrangement of the Stop Lock.

"The same letters in different diagrams refer to the same parts of the Signal.

"The principal parts are the Signal Boards, A. A.; the Signal Frame, B. B.; the Sliding Frame, C. C.; the Lantern Carriage, and Lanterns, D.; the jointed Levers, E. E.; the Guides, F. F.; the Connecting Rod, G.; the Signal Board and Stop Lock Lever, H.; the Stop Lock, I.; and the Latch Lever, K.

"The Signal Boards, A. A., are painted red on one face and white on the reverse, and the Lanterns are so placed that when the white face of the Board is exposed, the white Lantern is seen above the Board, and when the red face of the Board is exposed, the red Lantern is seen below. The Boards are hinged to the Signal Frame, B. B., at a distance equal to their width from the top of the frame, and connected with the Sliding Frame, C. C., which moves vertically in the grooved corners of the Signal Frame, by the jointed Levers, E. E., one Lever to each Board. The Sliding Frame, C. C., is attached to the Signal Board and Stop Lock Lever, H., by the Connecting Rod, G., while from the

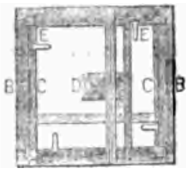


FIG.3. TOP VIEW

Fig. 3 shows a top view of the Signal and Lanterns.

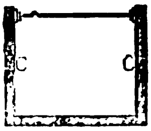


FIG.4. SLIDING FRAME

Fig. 4. An elevation of the Sliding Frame.

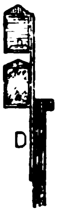


FIG.5. LANTERNS

Fig. 5. The relative position of the Lanterns.

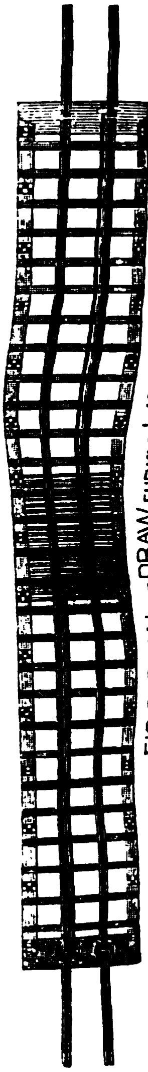
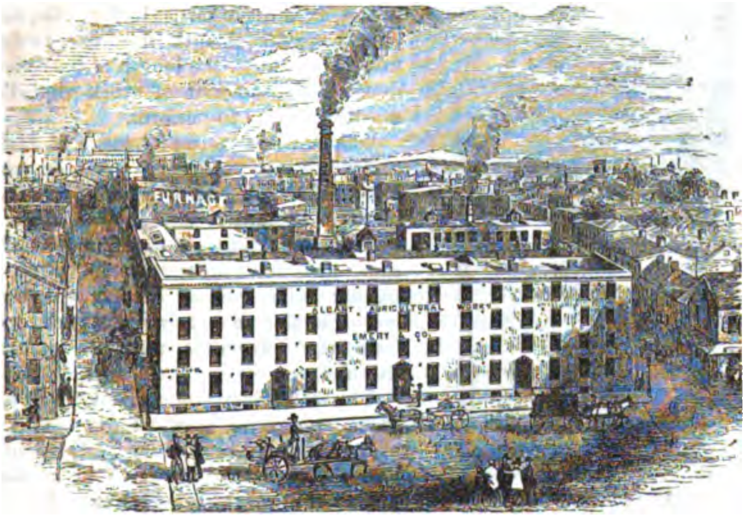


FIG 6 PLAN OF DRAW SHEWING LATCHES

under side of the Levers, the Stop Lock, I, passes into the Pier such a distance that, when raised, it leaves a space between its point and the Pier sufficient to admit the thickness of the curved arm of the Latch Lever, K. Against this Stop Lock, when down, rests the extremity of the curved arm of the Latch Lever, connected with the Latches at the point marked L, thereby preventing any movement of them until the Stop Lock is raised, which is shown at once by the Boards and Lanterns above.

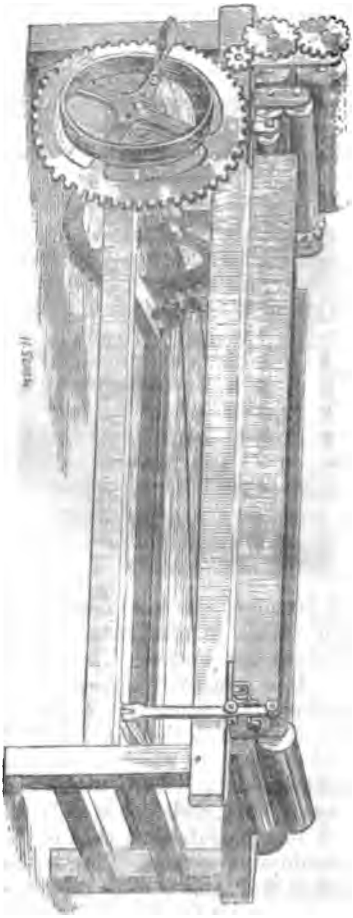
"Fig. 2 shows the same Draw, turned at right angles to its first position. To effect this, the Latches must first be drawn back, as follows: The long arm of the Signal Board and Stop Lock Lever is raised until the point of the Stop Lock comes above the Pier sufficiently to admit the curved arm of the Latch Line. In raising this arm of the Signal Board and Stop Lock Lever the opposite arm is depressed, which, by means of the Connecting Rod pulls down the Sliding Frame, and this, acting upon the jointed Levers, causes the lower side of the Signal Boards to describe a semi-circle, thus exposing the red side of the Boards and the red Lantern. Then by throwing back the Latch Lever, its curved arm passes under the foot of the Stop Lock, the Draw is unlocked and can be turned off.

"It will be seen that after the Draw is once moved, the Stop Lock cannot be lowered, even if the Latches be thrown out, on account of its point coming against the top of the Pier, and that after the Draw is returned to place, it must first be latched before the Stop Lock can be lowered and the signal of safety shown."



Emery & Brothers.—Among the many inventors who have done noble service to the cause of agriculture by improvements in machinery, are the ingenious and efficient firm whose name stands at our caption. Their manufactory is at Albany, and is very extensive. It is equally distinguished for the admirable facilities which they have contrived in conducting their operations, as for the conveniences and the labor-saving which they have devised for the farmer. We are not a little surprised at the show which they make on paper in the advertisement of their machines, which is found at the end of this number. They commenced operations in 1848, and they already include on their schedule of implements which they manufacture, most of the important machinery now employed in agricultural operations. Nor is the display a mere show on paper. We are satisfied that some of their machines are the very best of their kind. With some we are not familiar. But they deserve the encouragement of the community for their industry and efficiency as well as for their valuable inventions. Nor is this a desert merely, for they are receiving what they have worthily earned, the confidence and the patronage of a large number of the agricultural community. To them and others who are devoted to similar pursuits, the world is more indebted than to scores of scientific men, who have designed contrivances good for nothing but for pampering the appetites, or the waste and destruction of human life, or to scores of great generals who have inspired a whole people with the spirit of war and then offered them up, in hecatombs, on the altar which themselves had constructed. We commend the implements of Emery & Brothers to the notice of our patrons.

COLBY'S MACHINE FOR PEELING WILLOWS.



This machine consists of a frame about eight feet long and two and a half high, upon one end of which are hung two rollers, each seven inches in diameter, and of any required length from one, two or four feet, as upon the length of the rollers depends the amount of work that the machine is able to perform.

One of these rollers is made of India rubber and the other of wood or iron. They are so hung that they roll together one over the other so as to draw the willow through between them, and at the same time have an endwise or vibrating motion of an inch on each one in contrary direction so as to rub the bark loose from the willows as they are passing through.

This vibrating motion is very quick, given by a lever attached to one end of each roller with a fulcrum in the center between them, and operated by a crank, under the machine as shown by the figure. One of the rollers being of India rubber will allow different sized willows to pass through at the same time, and no willow however large or small can pass through without being rubbed, and the pressure of the rubber is not sufficient to break or injure the willow while it will rub the bark loose if the willow is in proper condition to peel. On the other end of the frame are hung two rollers like the first, only they have no vibrating motion and are both made of India rubber, and are geared as to run about eight times as fast as the first ones. About six inches forward of these are hung two other rollers each three inches in diameter, one or both made of India rubber and running together with the same speed and in the same way (except the vibrating motion) as the first ones. These three sets of rollers and the machinery necessary to set them in motion constitute the whole machine.

The willow, after passing through the first rollers, as described, are carried to the second or small rollers, by a belt running over the table between them, and the thick end, which is already clean, passing through them is seized by the larger rollers running very fast and stripped through the small ones and thrown out *clean*, while the small rollers hold the loose bark which then rolls through and drops in a pile by itself. Such is the simple working of this labor-saving machine; it does its work perfectly and rapidly, to the entire satisfaction of every one who has seen it work. The amount of work which it is capable of performing depends only upon the length of the rollers and the speed at which it is driven.

English Patents.

IMPROVEMENTS IN PHOTOGRAPHY. By Alexander Rollason, of Birmingham. —This invention consists of improvements in transferring to paper, linen, eardboard, bone, ivory, wood, metal, or stone, the film of collodion or albumen used in collodiotype or albumenized plates, by which a photograph may be removed from the glass or plate on which it may have been produced; or the plain film may be transferred on to certain of the substances above named, and a new base or medium produced for the photographic pictures.

The patentee first proceeds in the manner in which ordinary collodiotype photographs are produced; thus:—Having thoroughly cleansed the glass plate either with spirits of wine, naphtha, water, or tripoli, and finally buffed it with a charcoal buff leather, which will have a slightly greasy surface (and is therefore the better for the purpose,) he covers the glass with iodized collodion, or any other similar and suitable filmy material, on which a photograph can be taken; and after submitting it to any of the well-known processes for rendering the film sensitive, such as immersion in a bath of nitrate of silver, he places it in the camera, and takes a picture, which has then to be developed in the ordinary manner, viz., by washing with a solution of iron in nitric or glacial acetic acid, and afterwards fixed with a solution of cyanide of potassium or hyposulphate of soda: having been well washed, it is allowed to dry (if necessary, applying a gentle artificial heat.) Should the collodion be of a very adhesive quality, it is sometimes essential, before drying the picture, to immerse it for two or three seconds in a bath of very dilute nitric acid.

The picture thus taken is subject to the improved process for removing or transferring the film from the glass. Having first ascertained that it is perfectly dry, the inventor proceeds to color it (if intended to be colored) at the back or on the film itself, in the following manner, employing oil, or varnish, or well-sized water colors:—The picture is tinted according to taste; and, when dry, the whole is covered with any colored varnish, according to the general tint wished to be produced. If it is not desired to color the picture whilst on the glass, it is covered at once with varnish, the components of which are asphaltum or Brunswick black dissolved in mineral naphtha to about the consistency of cream. Its tone may be varied by the introduction of warmer or cooler color, according to taste, when the varnish is sufficiently dry, which may be proved by the finger detecting no stickiness. It is not desirable to let it dry beyond this point, lest it should crack; but, in case further operations should be suspended for a time, to avoid cracking, the varnish must be coated with a thin solution of shellac, which will prevent further hardening of the varnish. The next proceeding is to remove the film from the glass, and having prepared a mucilage—composed, by preference, of gum-arabic and honey, in the proportion of two-thirds of the former to one-third of the latter—the patentee covers the varnish with this mucilage; (in case it be paper employed for the transfer, it may be necessary to damp it first, and then coat it with the same mucilage) after which he attaches the paper or other flexible material to the back of the picture. An even adhesion of the surfaces is effected by clamping the edge between two pieces of wood jointed together, and rolling out the air bubbles with a simple apparatus, consisting of a piece of thick India rubber tubing slipped tightly over an ordinary ruler. When the transfer is to be taken upon wood, stone, or other non-flexible substance, care must be taken that the surface be perfectly smooth; and the air bubbles may be excluded by applying one end of the picture first and gradually sliding it on. When the mucilage is dry enough—which may be ascertained by raising or bending back one corner of the picture, upon which, if sufficiently dry, the film should begin to separate itself from the glass—the time has arrived for completing its removal. By means of a feather, a few drops of water or spirits of wine are now introduced between the edge of the picture and the glass, and, at the same time, the separation is gradually effected.

The transfer is now complete; and when it is desired to color it or get rid of the irridescence that will be perceptible upon it, a little magilp, or varnish, or oil, or any other softening matter that will not injure the delicate surface, is rubbed over it with a pellet of cotton wool so as to leave a slight stickiness, to which the dry colors known as "mansions," and many other dry colors, will adhere; and, in some instances, omitting this last operation, water, oil, or varnish colors may be employed. The picture is now complete.

By the same means the transfer from a plate or glass of a plain film of collodion or albumen on to any suitable base, such as a sheet of paper, or linen, wood, or ivory, may be effected.

IMPROVED COMPOSITION FOR FIXING LITHOGRAPHS AND ENGRAVINGS ON CANVAS, after being transposed or reproduced by a printing press. By Louis Adolphe Ferninand Besnard, of Paris.—This invention consists in transferring and fixing, by means of a composition on canvas or cloth duly prepared, all kinds of lithographic representations and engravings, without removing any particles of the paper on which they were made.

In a vessel specially adapted for this purpose and capable of bearing heat, about a quart of soft water with a spoonful of linseed is placed: this is heated to ebullition for a few minutes, and is then withdrawn and strained, and the product is passed into another vessel. In half a glass of the water prepared as above, 400 grains (troy) of white moist sugar, are dissolved and strained through fine linen,—and to this is added the quart of water prepared as above described.

Into a quart of water, maintained in a state of ebullition in a sand bath, 800 grains troy, of white gelatine are thrown while stirring with a wooden spatula. In about three minutes the liquid is withdrawn from the fire and passed through a strainer. The solution, thus prepared, is mixed with the linseed water and saccharine solution, and the whole is placed again on the fire. When ebullition commences, the inventor stirs with a camel-hair brush, which he withdraws saturated with the liquid, and passes quickly and lightly over the lithograph or engraving (which has been previously transferred to the canvas to be painted by means of transfer paper, with is entirely removed) up and down, across, and to and fro; thus leaving the drawing completely freed from the smallest particle of paper. This application of the above solution by the camel-hair brush fixes instantly the drawing to the canvas. The drying of the canvas occupies more or less time acording to temperature. It is next coated with varnish by means of a fish-tail brush, and the canvas is ready for painting by the ordinary methods.

The patentee claims the preparation of a composition and process of transferring and fixing lithographic images and engravings on cloth or canvas.

Improvements in the Masts and Spars of Ships and Vessels. By John Robb, and Laurence Hill, both of Greenock.—In carrying out their invention the patentees build the lower part of the mast of iron, from the "step" to the upper deck, or to a short distance above the upper deck; and the upper part of the mast, from or near the deck, they construct in any of the ways usually adopted in the construction of a wooden mast, and fix it in the upper end of the lower or iron portion. Masts so constructed can be cut away with the usual facility, and, if cut or carried away, they can be more easily replaced than common masts, or than masts constructed wholly of iron, or having iron plates running throughout the entire length. The form of the iron part of the mast is that of a hollow iron tube, which form facilitates the fixing of the wooden part into it. It may either be built into and form part of the vessel, which plan is preferred, or it may be constructed as a separate piece, and fixed in the usual way of fixing masts in vessels.

The spars of ships the patentees also make, in part, of hollow iron tubing, say five or six feet in length, for a spar of about forty feet long, but longer or shorter for other lengths of spars; and the remaining portions or ends of the spar, they form by inserting into each end of the hollow iron tube a piece of wood of the same construction as the corresponding portion of a wooden spar made in the usual manner.

Improvements for constructing Propellers, &c. By George Peacock, of Gracechurch street.—This invention consists in making each blade of a propeller of an open frame of wrought-iron, and covering such frame with sheet-iron, by which means great strength may be obtained with comparative lightness of structure. The form of the propeller-blades may be varied, but it is preferred that the outline of the open frame should correspond with that of a bee's wing; and, in applying the sheet-iron to such frames, the same is formed hollow in front, and convex on the back surface, and parabolic in its curvature.

Improvements on the Construction of Railway Wheels. By Alfred Krupp, of Essen, Prussia.—This invention consists in forming railway wheels by a combination of a solid cast-iron disc, whether corrugated or otherwise, or plain, with or without ribs, with a wrought-iron or wrought or rolled steel tyre affixed thereto, by shrinking pressure, or bolts and nuts, or by any other suitable method.

The wheel is constructed of two distinct parts; namely, first, the interior of the wheel, including the nave; and second, the tyre. These parts are united by bolts and nuts, or by the ordinary process of shrinking. The interior part of the wheel and nave are formed of solid cast-iron: the portion surrounding the nave is provided with radial corrugations (or of an undulatory form,) which diminish in depth towards the rim. The rim is furnished on each side with a flange; the inner one being of a greater depth than the outer, in order to receive the bolts necessary to secure it to the tyre; or the central portion of the wheel may be cast with a number of radial ribs, of a greater width at the nave and diminishing towards the outer edge. In all cases the central portion should be cast of sufficient dimensions to allow of being turned in the lathe, to form smooth and even surfaces at the periphery and at the nave, for securely fixing the tyre and axle. For locomotive wheels, the radial corrugations or ribs should be increased proportionably in number and depth to the size of the wheel. The tyres for these wheels may be of wrought iron, or of wrought or rolled steel, and attached to the rims or flanges of the central and solid portion of the wheel, either in a hot state by shrinking, or in a cold state by means of a hydraulic press, or by bolts and nuts, or by any other approved method.

The patentee claims constructing railway wheels by a combination of a solid cast-iron disc with a wrought-iron or wrought or rolled steel tyre, affixed thereto by shrinking, by bolts and nuts, or by any other known suitable means.

Improvements in the Preservation of Vegetable Substances. By Francois Joseph Anger, of Stamford street, Blackfriars.—This invention consists in preserving potatoes and other vegetable substances, by means of a process which effects a change in the nature of the farinaceous matter contained in the vegetables operated on, and prevents decay or decomposition taking place. The agent employed for the purpose of this invention is an extract from fermented grain called diasta-is, which is mixed with warm water. This solution is heated to a degree sufficient for decomposing the farinaceous matter of the potato or other vegetable, which is then placed therein and allowed to remain until perfectly imbued with the solution and the farinaceous parts are decomposed. The vegetables are then removed from the solution, and placed in drying-rooms until thoroughly dried. When thus prepared, the potato or other vegetable is not susceptible to the decomposing influence of the atmosphere. The patentee remarks, that certain neutralized acids or chemical salts can be used instead of diastasis, and the employment of them would effect the purpose, but not so well as the diastasis.

Silver Medal to the Amoskeag Company.—The Amoskeag Mills, David Gillis, Esq., agent, have received an elegant silver medal of the first class for their superior display of sheetings, tickings, flannels, and denims, at the World's Exhibition at Paris last year. This company received the prize at the World's fair at London for the same class of goods. These two prizes indicate beyond question that the American products cannot be equalled, in some instances, by the rich manufactories of the old world.—*Manchester Mirror.*

Miscellaneous.

SHARPE'S RIFLE.—This recently-invented weapon, if it possesses one-half of the power and capacity claimed for it by its proprietor, is destined soon to supersede every other weapon for warlike purposes now in existence. It is the most efficacious and terrible fire-arm in existence. The small carbine now used by the United States mounted men, throws a ball with a deadly accuracy one-quarter of a mile, and can be fired ten times per minute. It is not complicated in structure, is easily cleaned, and suffers no injury from wet weather.

Mr. Sharpe is now preparing models for four new species of his weapon, namely: A small pocket pistol, calculated to throw a minnie ball one hundred yards; a rifle suitable for footmen, with a range of one mile; and a large gun to throw a two-ounce ball or a small shell, one mile and a half, or as far as a man and horse can be seen to advantage. With this latter weapon, Mr. Sharpe declares he can set on fire a house or a ship at a distance of nearly two miles, and prevent the use of field artillery by killing the horses before the guns are brought within a good range.

This rifle, in the hands of a good marksmen, is equal to ten muskets, bayonets and all; for, place a man six rods distant with a musket and bayonet, and before he can bring the bayonet into use, the rifle can be loaded and discharged ten times. They carry balls with great precision and force. Mr. Sharpe intends these rifles to become a national weapon, and should Congress, by using a little liberality, purchase the patent, the country would be possessed of a means of warfare unequaled in the world.—*Alton Courier.*

STATISTICS OF ENGLISH AND FRENCH AGRICULTURE.—Some interesting statistics relative to the Agriculture of France and England were given in a lecture delivered a few days since in Cornwall, by M. R. de la Trehonnais. In England, out of 50,000,000 acres cultivated, 10,000,000 are sown to wheat or other cereal crops, while in France 50,000,000 were cultivated for that purpose. The average growth of wheat per acre in England is 4 quarters, and in France only 1¾ quarters; while the produce of English land is about £3 4s. per acre, and that of French £1 12s. per acre. The number of sheep grown in each country is about 35,000,000, and the wool produced about 60,000 tons; but, owing to the difference in the average, there is something less than 1½ sheep per acre in England, and only about one-third of a sheep per acre in France. In France there are annually slaughtered 4,000,000 of cattle, the average weight of each being two cwt.; while in England there is not half the number slaughtered, but the average weight is five cwt.—*London Times.*

THE STEAMER SEBASTOPOL.—A new steamer, intended to run in the Upper Lake trade, has just been completed in the ship-yard of L. Moses, in Cleveland. She bears the appropriate name of Sebastopol. For strength and capacity, says the *Plaindealer*, she is not surpassed by any craft in that trade on the lakes. Her engine was manufactured at the Cuyahoga Works, has 32-inch cylinder, 11 feet stroke of piston, and is rated at 800 horse power. The wheels are thirty feet in diameter. She is about 830 tons capacity, and, with all her machinery, draws but four and a half feet of water, and with full cargo will not exceed eight and a half feet draught. No lighting over shoal water, or the St. Clair Flats can be apprehended. She cost about $60,000.

THE LAKE FISHERIES.—The number of barrels caught annually is stated as follows:

Lake Superior, 3000 bbls.; Lake Michigan, 15,000; Lake Huron, 15,000; Lake Erie, 3000; making in all 35,000. To which is added Detroit River, white fish, 7000; making a total of 42,000 bbls.

These are sold at an average price of $11 per barrel—the aggregate amount of sales being $462,000, or nearly half a million dollars. Probably one-sixth of all the fish caught in Lakes Michigan, Huron and Superior, are trout—the remainder being white fish. In some of the rivers that flow into the Lakes, enormous quantities of pickerel are caught, reaching a total, with bass, mullet, etc., of about 10,000 barrels, selling for $85,000. It appears that there are thirty-three varieties of fish in and about the Lakes, many of which might be artificially and successfully propagated.

MARYLAND AGRICULTURAL COLLEGE.—Mr. Sothoron has reported a bill in the Senate to establish and endow an Agricultural College in the State of Maryland. It provides that when the stockholders shall have secured subscriptions for two thousand shares of twenty-five dollars each to the stock of said college they shall be entitled to draw from the States Treasury the annual sum of $6,000, which is to be appropriated as a perpetual endowment for the payment of the salaries of professors, &c. James T. Earle, John O. Wharton, Nicholas B. Worthington, Charles B. Calvert, George W. Hughes, Walter W. W. Bowie, Ramsey McHenry and J. Carroll Walsh, Esqrs., are named as the commissioners to obtain subscriptions. The Governor of the State is to be president ex-officio, and the President of the Senate, and the Speaker of the House of Delegates, and the Comptroller of the treasury, for the time being permanent trustees.

INCREASED FACILITIES FOR WESTERN TRAVEL.—Three years ago I came from Cleveland, by the road, with my family and conveyances, and we were nearly three weeks on the way. Now, we can make the trip by railroad in eighteen hours. We are 145 miles from St. Louis, and a year ago it required several days of hard travel for man and beast to reach that city. Now, two trains of wide, comfortable cars, pass daily over a very good six foot railroad, in which the man of business or pleasure can read the morning paper, or look out upon the broad and beautiful prairie, or take a nap in his easy seat without fear of the horse tiring, or it becoming necessary to pry out of the mud.

A daily line of first-class steamers now ply between Cairo and New-Orleans. Passengers from the South, for the East, take the Illinois Central road at Cairo, to the crossing of the O. & M. R. R.; thence here to Indianapolis, Cleveland, New-York, Boston, Philadelphia, &c., &c. From Cairo to New-Orleans navigation is never obstructed by freezing, while the Mississippi and Ohio, above Cairo, are frequently frozen entirely over. Such is the case at this time, and but for the railroads travel between the North and South would be suspended.—*Cor. O. Far.*

GUANO FOR COTTON.—We have seen a letter of a late date from Dr. Cloud, of the *Cotton Planter*, in which he says, "My guano has astonished the natives. On sixty acres of land, with six dollars' worth of guano to the acre, I have made 100,000 pounds seed cotton and fifteen bales yet to pick." The Doctor's plantation is in Macon county, and consists mostly of level pine-land, with a clay subsoil. We want no better proof of the beneficial results of guano. In this case, less than 200 pounds to the acre, combined with land plaster, have produced, upon what is considered poor land, more than the average yield of the best prairie and river-botton lands. A great deal of similar land is to be found in Mobile and Baldwin counties, which, by the employment of a liberal dressing of guano alone, or guano and land plaster combined, would produce fine crops of corn, oats, rye, wheat, cotton and garden vegetables.—*Ala. Planter.*

Bees and Quails.—The Rev. A. H. Milburn in a lecture on the West says:

" Two remarkable facts are to be noted in respect to the advancement of the whites. The first is that the quail, unknown to the Indian, makes its first appearance—from whence no man knows—when the white man plows and plants his fields, affording an abundance of delicious food to the pioneer. The second fact is that the honey-bee is not found in the country while in the possession of the Indians. It keeps just in the advance of the advancing wave of civilization. When the Indians see the swarms of these new visitors, their wise men sadly acknowledge that it is time for them to abandon their pleasant hunting-grounds and the graves of their fathers, and seek new homes."

Mode of Feeding.—An English farmer says, "Good sheds, *dry beds*, *small* yards or boxes, regularity in feeding *small* quantities at a time, are the great essentials in feeding all animals, and strict attention to these principles would save an immense quantity of valuable food."

Largest Carrying Ship.—The keel of a ship was recently laid at the shipyard of Wm. H. Webb, in New-York, intended to be the largest carrying ship ever built. She is to be of 2500 tons, 240 feet long, 46 feet beam, and 30 feet hold, and is estimated to carry over 7000 bales of cotton.

Import of Dry-Goods at New-York.—For the first ten months of 1852 the estimated value on imported dry-goods at this port was $53,000,000; for the corresponding period of 1853, $82,000,000; of 1854, $76,000,000; and of 1855, $57,000,000. The falling off during the past year was doubtless consequent on the excess of importations for previous years.

Joy at a Friend's Fall.—A wag having been told that the price of bread had fallen—exclaimed: " This is the first time that I ever rejoiced at the fall of my best friend."

Manufactures in Marblehead, Mass.—Marblehead annually manufactures some 300,000 pairs of boots and shoes, that are valued at over a million of dollars. They have 2,565 persons—1,080 males and 1,485 females, employed in the business. They have found it for their advantage to have fewer fishing vessels and more shoe shops.

Grain Crop of Illinois.—The *Chicago Press* estimates the grain crop of Illinois for 1855 as follows: 180,000,000 bushels of Indian corn; 20,000,000 bushels of wheat, and 50,000,000 of oats, barley and rye.

NEW BOOKS.

Edith Hale. A Village Story. By Thrace Salmon. Phillips & Sampson, Boston. 1856.

This is a pleasing and simple story of a young girl. Some of the scenes are very amusing, and others are very sorrowful. It is a very good book.

Wolfsden; An Authentic Account of Things then and thereunto pertaining, as they are and have been. By J. B. Phillips & Sampson, Boston.

This is a New-England story, describing the fortunes of several of the "Wolfsdeners," but principally of Alek, who, sadly disappointed at finding that his lady love prefers another, leaves his home to seek his fortune.

The Quarto Shakspeare. Illustrated. Martin & Johnson, 27 Beekman street, New-York.

Thirty-eight numbers of this splendid edition have now been issued. We can hardly commend the publishers too highly for the almost absolute perfection of style in which they have executed this great work. The engravings are of the highest style of art. Thirty-eight of equal merit can scarcely be found in any American publication, and they, and the paper and letter-press are all in good keeping. The last will soon be published. Price 25 cents a single number. Most of the later numbers are double.

The Kings of Rome. The Republic of Rome. By F. W. Ricord. With illustrations. New-York: A. S. Barnes & Co. 1856.

These two small volumes give us a concise history of the periods to which they belong. The first is, of course, to a great degree fabulous, but it is all we have. Both are well arranged and well written, and should be in every juvenile library. Both are illustrated with good wood engravings.

The Catholic. Letters addressed by a Jurist to a Young Kinsman proposing to join the Church of Rome. By E. H. Derby. Boston: John P. Jewett & Co. 12mo, 293 pages.

These letters are written with very great ability. The argument of the writer is sustained by the early fathers, Scripture, history, and books of travels. It is admirably written, and the whole is executed with remarkable taste.

Life of Schamyl, and Narrative of the Circassian War of Independence against Russia. By J. Milton Mackie, author of "Cosas de España." Boston: John P. Jewett & Co. New-York: Sheldon, Lamport & Blakeman. 12mo, 300 pages.

Schamyl, the hero of this narrative, and a hero in the Circassian war, was born in 1797, and after the death of Hamsad Bey, became his successor as Imam, and is intimately connected, of course, with the intensely interesting events of that remarkable war. The work has the interest of a novel, is well written, and no doubt reliable.

Ernest Linwood. A Novel. By Caroline Lee Hentz. Boston: John P. Jewett & Co. 1856.

Mrs. Hentz was a very beautiful and a very powerful writer. We say was, for we regret to say that she died the very day this book was published. She excelled in the humorous style, and she equally excelled in the pathetic and in the passionate. The volume before us furnishes abundant proof of this. No female writer in this country deserves a higher place in the esteem of the public than she, as no other was more ardently beloved or more highly honored by those who personally knew her. For it is not merely as an author that she was preëminent. As a woman, by her elegance of manner, her rare powers in conversation, her well-proportioned intellect, and her character throughout as a woman, a wife, and a mother, Mrs. Hentz, the individual, was as distinguished as Mrs. Hentz the author.

This volume is remarkable for variety in the character of its scenes, all alike well conceived and admirably managed. And through the whole there is a tone of deep religious feeling, not ostentatiously paraded nor exhibited for effect, but pervading the whole book, and flowing out of the writer's inmost soul. Would that we had a multitude of just such noble women.

The volume is for sale in New-York by Sheldon, Lamport & Blakeman.

List of Patents Issued

FROM TERMINATION OF PREVIOUS LIST TO MARCH 4.

Edward F. Berry, of Hudson, N. H., for improvement in machines for sowing seed broadcast.

Sherburne C. Blodgett, of Philadelphia, Pa., for improvement in forks.

Henry A. Brown and James Wiley, of Brooklyn, N. Y., for improved fountain pen.

Wallis and George Bull, of Tonawanda, Pa., for improvement in machines for sawing marble.

Abner Burnham, of Albany, N. Y., for improvement in cooking stoves.

George H. Corliss and Elisha Harris, of Providence, R. I., for improvement in rolling metal.

George H. Corliss and Elisha Harris, of Providence, R. I., for improvement in forging thimbles.

John B. Cornell, of New-York, N. Y., for improvement in vault covers.

Marcus M. Cass and Lawson R. Bigelow, of Watkins, N. Y., for improved grapple for raising stone.

Seth P. Chapin, of New-York, N. Y., for improvement in sewing guides.

Stephen Gorsuch, of Altoona, Pa., for improvement in seeding machines.

John Johnson, of Troy, N. Y., for improvement in power looms.

Francis Jos. Klein, of New-York, N. Y., for flexible pen-holder.

Abraham, Ezra, and Chas. Marquiss, of Monticello, Ill., and Chas. Emerson, of Decatur, Ill., for improvement in the mode of draining ploughs.

James B. Mell, of Riceboro, Ga., for improvement in ploughs.

John H. Palmer, of Elmira, N. Y., for machine for tenoning window blinds.

Micheal Phelan, of New-York, N. Y., for improvement in billiard and table cushions.

Charles S. Pitman, of Swampscott, Mass., for improved mode of applying shafts to axles.

Rensselaer Reynolds, of Stockport, N. Y., for improvement in temples for looms.

F. Roesler, of New-York, N. Y., for improvement in the construction of pessaries.

Jos. Smith, of Sunbury, O., for improvement in hubs for carriages.

James F. Starret, of New-York, N. Y., for machine for printing from engraved plates.

Philip Scrag and W. J. Von Lammerhusber, of Washington, D. C., for improvement in machines for sawing marble in obelisk form.

Masa B. Southwick, of the Parish of St. Hilaire, Canada, for improvement in machines for preparing vegetables for preservation. Patented in England September 15, 1858.

Russel Wildman, of Charlestown, Mass., for improvement in furnaces for heating slugs for the use of hatters, tailors, and others.

George W. Livermore, of Cambridgeport, Mass., assignor to the Livermore Manufacturing Company, of Boston, Mass., for improved stave machine.

Hamilton L. Smith, of Gambier, Ohio, assignor to William Neff and Peter Neff, Jr., of Cincinnati, Ohio, for photographic pictures on japanned surfaces.

Re-Issues.—Wm. Apperly, of New-York, N. Y., for ticket registers for railroad cars, etc. Patented May 1, 1855.

John H. Manny, of Rockford, Ill., assignor to Peter H. Watson, of Washington, D. C., for improvement in harvesting machines. Patented October 17, 1854. Antedated June 15, 1854.

Wm. Bell, Boston, improved machine for depositing coal in cellars.

Andrew Blaikie and Walter Clark, St. Clair, Michigan, improved pitman.

Henry J. Brunner, Nazareth, improved machine for edging wall paper.

Benj. F. Bundy, Walton, N. Y., improvement in wagons.

Nathan T. Coffin, Knightstown, Ind., improved mill saw.

Richard Cross, Attleboro', combined knife and pencil case.

Ari and Asahel Davis, Lowell, dove-tailing machine.

Othniel W. Edson, Troy, improvement in machinery for making shirt collars.

John U. Fiester, Winchester, Ohio, improvement in churns.

Alfred C. Garrett, Roxbury, improved box for carriage hubs.

Stacy A. Garrison and Daniel C. Morey, Chelsea, Mass., improved coupling for the joints of fellees.

Stephen J. Gold, New-Haven, improved air-cock for steam-heating apparatus.

Peter C. Guion, Cincinnati, improvement in girders for bridges.

Horace L. Hervey, Quincy, improvement in the arched trussed bridge.

Chas. T. James, Providence, improvement in projectiles.

Edward N. Kent, New-York, improved machine for separating gold and other precious metals from foreign substances.

Wm. M. Kimball, Rochester, improvement in lamps.

James T. King, New-York, improvement in domestic steam generators.

John H. B. Latrobe, Howard county, Md., improvement in percussion locks for fire-arms.

Wm. Lincoln, Oakland, Mass., process of painting or varnishing woven wire.

Nathan Martz, Briar Creek Township, Pa., improvement in horse-rakes.

James S. McCurdy, New-York, improvement in binding guides.

A. R. Moen, New-York, improved mode of constructing walls and floors of cellars.

T. J. W. Robertson, New-York, improvement in sewing machines.

Wm. F. Shaw, Boston, improved apparatus far heating by gas.

David G. Smith, Carbondale, improved door spring.

James Temple, Birmingham, Pa., boring machine.

Ira F. Thompson, Westerly, improvement in velocimeters for vessels.

Heman Whipple, South Shaftsbury, Vt., improvement in instruments for measuring the lengths of braces in carpentry.

Russell Wildman, Charlestown, improvement in machines for hardening hats.

Jos. Wood, Jersey City, improved method for excluding dust from railroad cars.

John Wright, Harmar, O., improvement in bending sheet metal.

Wm. E. Wyche, Brookville, N. C., improvement in cultivating plows.

Jacob M. Webb, Somerville, Tenn., improvement in coffee pots.

John S. Barden, New-Haven, assignor to himself and Aaron W. Rockwood, hydraulic meter.

John Goodyear, Jr., and Thos. J. Berry, Philadelphia, assignees to themselves and Wm. M. Foster, Carlisle, Pa., improved roach trap.

Chauncey H. Guard, Brownsville, N. Y., assignor to John A. Scroggs and C. H. Guard, same place, improved wheelwright machine.

John Sheltltin, Washington, D. C., assignor to himself and Oliver A. Dailey, same place, improved arrangement of means for operating the valves of steam engines.

Wm. P. Wood, Washington, D. C., assignor to himself and John S. Gallagher, Jr., same place, improved sawing machine.

W. W. Albro, of Binghampton, N. J., for improved apparatus for cooking with quick lime.

Timothy Alden, of New-York, N. Y., for machine for sweeping streets.

Christian Amazeon, of New-Castle, N. H., for improvement in machines for sawing marble in taper form.

James W. Beebee, of Brooklyn, N. Y., for improvement in manufacturing hats.

Wm. M. Bonivill, of Camden, Del., for improvement in corn harvesters.

J. M. Burke, of Danville, N. Y., for improved skein for axle-arms.

James J. Cadenhead, of Macon county, Ala., for improvement in ploughs.

Ransom Clifford, of Lowell, Mass., for improved shingle machine.

Robert Cornelius, of Philadelphia, Pa., for improved arrangement of steam tubing for regulating the heating of buildings.

Isaac Davis, of Groton, N. Y., for improved hinge for shutters.

Owen Dorsey, of Howard county, Md., for improvement in harvester rakes.

Elon Dunbar, of Philadelphia, Pa., for self-acting farm gates.

Wm. E. Everett, of New-York, N.Y., for improved lubricator.

Geo. Fetter, of Philadelphia, Pa., for improvement in boot crimps.

Luther B. Fisher, of Coldwater, Mich., for improvement in sheep shears.

Daniel Fitzgeral, of New-York, N. Y., for improvement in portable houses.

B. F. Foering, of Philadelphia, Pa., for improvement in supplementary grating for stoves, furnaces, etc.

F. R. Ford, of Ophir, Cal., for improvement in rifle boxes.

James Greenhalgh, Sr., of Waterford, Mass., for improvement in power looms.

George C. Jenks, of Boston, Mass., for improved guard for coal holes.

Charles H. Johnson, of Boston, Mass., for improvement in the apparatus for heating buildings by the combination of, and burning gas, air and steam.

James Kelly, of Sag Harbor, N. Y., for improvement in stoves and furnaces for railroad cars and other purposes.

Ebenezer Maters, of Morgantown, Va., for improved bench planes.

George T. McLauthlin, of Boston, Mass., for improvement in railroad car seats.

John T. Ogden, of Boston, Mass., for improvement in handle for vise.

Eugene J. Post, of Vienna, N. J., for improvement in scythe rifles.

Alphonse Quantin, of Philadelphia, Pa., for improved method of bottling fluids under gaseous pressure.

Prentice Sargent, of Newburyport, Mass., for improvement in lamps for burning rosin oil.

George Schuh & Phineas L. Slayton, of Madison, Ind., for improvement in machines for pegging boots and shoes.

Horace B. Simonds, of West Hartford, Vt., for improved mode of attaching hubs to axles.

Hiram Smith, of Norwalk, O., for improvement in air escapes for pumps.

Aaron & Thomas S. Smith, of Troy, Ill., for improvement in gang plows.

Jeremiah P. Smith, of Hummelstown, Pa., for improvement in corn shellers.

Abraham Steers, of Medina, O., for improvement in tanning apparatus.

Vinzenzo Squarza, of New-York, N. Y., for improvement in candle dipping machines.

Daniel and George Tallcot, of Oswego, N. Y., for improvement in ships' capstans.

Wm. B. Tilton, of New-York, N. Y., for improvement in guitars.

Andrew L. Whiteley, of St. Louis, Mo., for improved method of adjusting circular saws.

Sylvanus H. Whorf, of Roxbury, Mass., and Charles Rice, of Boston, Mass., for improvement in the application of soles to boots and shoes by means of pressure and gutta percha or other cement.

George Woodward, of Brunswick, Me., for improvement in heading bolts.

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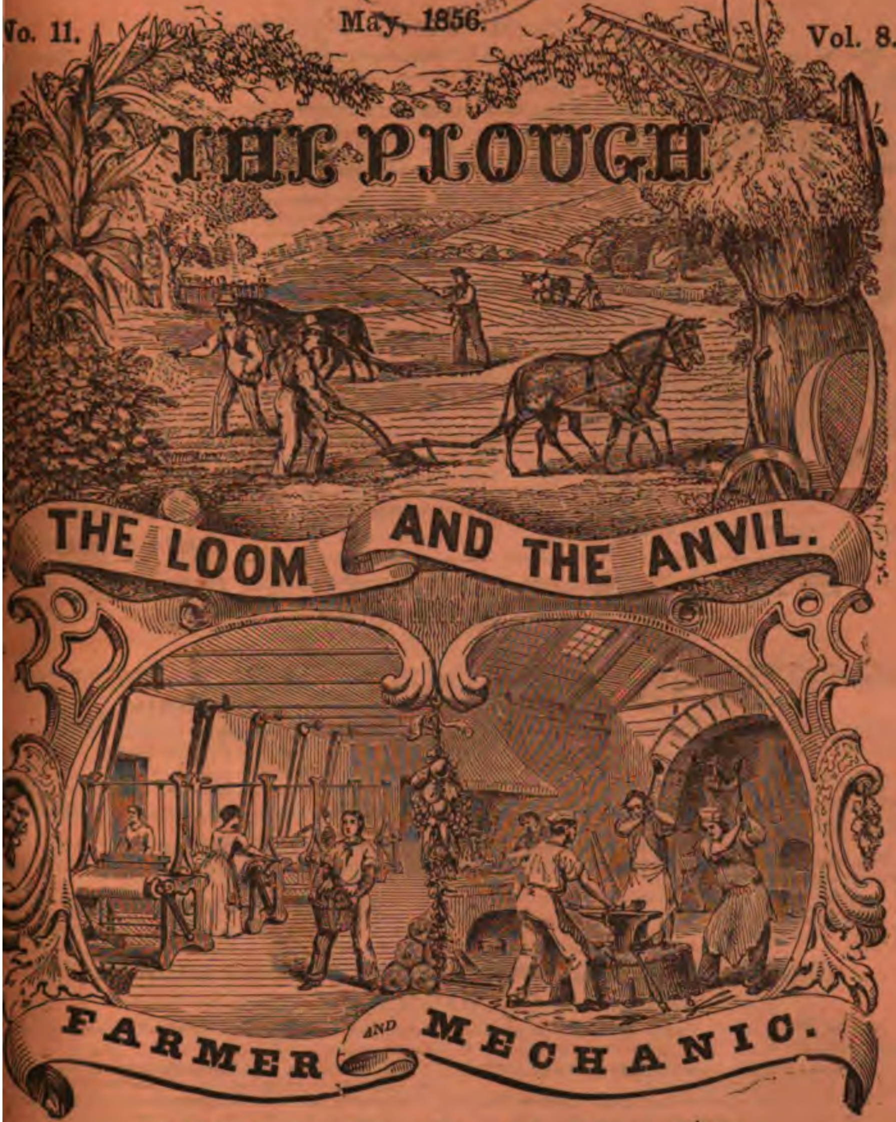

THE PLOUGH, THE LOOM AND THE ANVIL.

FARMER AND MECHANIC.

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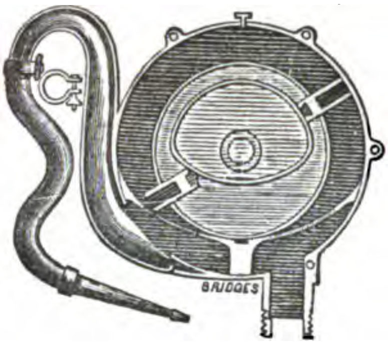
PUBLISHED AT ROOM 19, NASSAU BANK BUILDING, OPPOSITE BRICK CHURCH,
BEEKMAN STREET, NEW-YORK.

AGENTS FOR THIS JOURNAL.

The following persons are authorized to act as Canvassing and Collecting Agents for this Journal: S. D. ALLEN, and MOORE & ATKINS, of this city; JAMES DEERING, of New-Orleans, La.; [illegible] HASKELL, of Amherst, Mass.; and L. PEA[illegible]K, of Boston.

A. W. CARY'S ROTARY FIRE-ENGINE PUM



THE Inventor, after thoroughly testing this engine pump, for the past two years, feels confident that it is not equalled by any thing now in market, in the way of raising or forcing water; the motion being rotary, the stream is constant, without the aid of an AIR vessel. The packing is self-adjusting, very durable, and can not well get out of order.

These pumps are well calculated for all the purposes for which pumps or hydrants may be used, viz., Factories, Steamboats, Tanneries, Breweries, Distilleries, Railroads, Water Stations, Hotels, Mines, Garden Engines, &c.

Among the many testimonials given of this pump, is a gold medal awarded at the last great Fair of the American Institute.

No. 1 is a house or well pump and domestic *Fire Engine*, and will raise from 20 to 30 gallons per minute.

No. 2 will raise 100 gallons at 120 revolutions.
No. 2½ " 200 " 120 "
No. 3 " 300 " 120 "

The quantity raised can be doubled, by doubling the revolutions. These machines are manufactured and sold by the subscribers at Brockport, N. Y.; also in *this city, 240 Broadway*, corner of Greenwich,) by J. C. CARY.

Sept. 18–1y.

CARY & BRAINERD.

SPRING CLOTHING.

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ORGAN HARMONIUMS, and MODEL MELODEONS,

Made by MASON & HAMLIN, Boston, Mass.

The following are extracts from the opinions of several leading musicians and organists who have seen and examined them:

"They are decidedly superior to any others with which I am acquainted."—LOWELL MASON.

"The most satisfactory result of reed appliance that has come under my observation."—GEO. JAS. WEBB.

"Superior to any that I have yet examined."—GEO. F. ROOT.

"You are certainly producing Melodeons which in all desirable characteristics are, so far as I can perceive, faultless."—WM. B. BRADBURY.

"By far the best and pleasantest-toned reed instrument which I have ever seen."—WM. MALON.

"Very much superior to any reed instrument which I have ever seen, either in this country or in Europe."—GUSTAVE SATTER.

"I have no doubt that your 'Organ Harmonium' will, as it deserves, be brought into general use in our churches."—B. F. BAKER.

"They far exceed the expectations I had formed, in tone, finish, and mechanism."—JOHN H. WILCOX.

"In every respect they are far superior to any thing I have ever seen of the kind, either in Europe or America."—GEO. WASHBOURNE MORGAN.

"I have never seen a reed instrument so effective as your 'Organ Harmonium.'"—HENRY STEPHEN CUTLER

"They far surpass all other instruments of the kind which have come under my observation."—C. ZEUNER.

"The *ne plus ultra* of reed instruments."—G. W. PRATT.

"In my opinion they have not been equalled by any manufactured."—S. A. BANCROFT.

"Far in advance of any Melodeon I have ever before seen."—W. R. BABCOCK.

"They are the most perfect instruments of the kind manufactured, so far as I know."—EDWIN BRUCE.

"I do freely and cheerfully admit it is the best I have seen."—R. D. MCARTHUR.

"Far superior to any I have ever seen."—W. F. SHERWIN.

Mr. W. B. Bradbury, the distinguished composer and musician, thus gives a general answer to the numerous inquiries received by him, regarding organs, etc.

"I have received several letters of late, asking my advice about organs for small churches—organs worth from three to seven or eight hundred dollars. I am fully of opinion that the 'Organ Harmonium,' made by Mason & Hamlin, of Boston, is in every respect a most desirable instrument for the church. In purity of tone, variety and POWER, it seems to me preferable to any or[illegible] that I have seen costing double the money."—[S[illegible] F. Musical Review of Jan. 26.

Price of Melodeons, from $60 to $200 | Price of Organ Harmonium, [illegible] 0

☞ Before concluding a purchase of Melodeons please send for our circulars, which will be f[illegible] d to any address free, on application to the undersigned. Sole Agent in New-York, S. T. GORDON, 297 Broad[illegible]

MASON & HAMLIN, Cambridge-st. (corner of Charles), B[illegible] Mass.

1863, July 5,

The Plough, the Loom, and the Anvil.

Vol. VIII. MAY, 1856. No. 11.

AMERICAN MANUFACTURES.

We took occasion in our last number to present our views in relation to the movement of the New-York jobbers of iron-ware. We are persuaded that our position is the only one tenable by any man who pretends to advocate the encouragement of home industry. If our only object is to heap up money in our own coffers by importations from abroad, or if it is proposed to do so by swindling in any of the fashionable modes of amassing wealth, now so common, which have no regard for the common welfare, or for the progress of the nation in power and wealth, then this movement might be satisfactory. But to say to the intelligent and skillful mechanics of this great country "you shall not affix your name, and above all, your location, on any of the products of your hands"—is the coolest piece of brazen impudence we ever saw in print over respectable signatures. And even now we can scarcely believe it the work of those whose names are signed as approving the movement.

But our object is not now to repeat what we then wrote. The longer we reflect upon this movement, the more induced we are to use stronger terms of disapprobation in reference to it. It is, however, a much more pleasing duty to turn to our own skillful artists and manufacturers, and to show forth the very honorable position they have secured among their fellow-producers the world over.

"Who reads an American book?" is a taunt, the malignity of which is forgotten in the utter contempt which universally attaches itself to one who indulges in such foolish language. As a matter of fact it is probably the few Americans, of the type of those who contrived this vain attempt to govern our intelligent manufacturers, and who led more worthy men to adopt it, without considering what it involved, it is probably these men who never "read an American book," nor any other; but who live only to fatten on the spoils of all whom they can fleece. We are sorry that so many highly respectable men have been drawn into such a net by such men.

The same taunt used to be thrown off, very flippantly, in reference to American manufactures, and the generation of those who prize a thing chiefly because it is foreign, is not yet extinct. We wish some foreign operator would take these persons under their care for a while and mend not only their manners, which often are sadly in fault, but their intellects and their tastes, teaching them the true mode of determining merit, and the way in which even themselves can become useful and honored members of community. But if we allow ourself to dwell on this matter we may be tempted to write what we should regret. We are sure it is safe ground on which we enter.

There are but few departments in mechanic art, in which we do not occupy an eminent position.

In some of the more expensive and merely ornamental, we are content to follow. It is well, perhaps, here *only* to imitate. French milliners are probably gifted by nature, with the faculty of painting butterflies and scenting roses and orange flowers more "charmingly," than our own more matter-of-fact, utilitarian wives and daughters. We doubt whether any body, but these and their few kindred that, by accident, were born under some other firmament, would ever attempt the highest flights in those curious realms. Let them have full scope.

But the moment you enter upon *real life*, upon the catalogue of those pursuits that dignify and improve, you find our own country among the foremost.

From Collins through the whole fleet of structures of all names and sizes, that float on the water, down to the smallest bark canoe, we at least, when we regard actual achievements, have no cause to be ashamed of ourselves. If we turn to what we ought to have done, and might have done, with proper encouragement and protection, we may find occasion for self-reproach and censure. If we look to our Lowells and Lawrences, and Manchesters, another immense vista opens, which in any community would inspire pride and satisfaction. Go through Pennsylvania, and note her mighty products, that provide so abundantly for the comforts of our entire people for the larger half of year, and visit her furnaces and forges, and kindred forms of industry, and if you are not amazed at what has been done, it will only be because you wonder more at the folly which has refused to them that kind of patronage which would have placed the products of that great State far above and beyond those of any like region in the globe.

But life is made up chiefly of little things, and the arts that do so much to make men happy and efficient are mainly much less imposing in their forms. We are not certain that a learned and very discreet friend of ours, was not right, when, some twenty years ago, he remarked to us that the invention of friction matches had done more for domestic comfort than any other invention of the age. It is true, undoubtedly, that some of the most unpretending and unattractive contrivances which daily come into use in every family, are eminently among the *essentials* of an intelligent, progressive community.

Hence it is that the man who contrives an improved cooking utensil, an improved range or stove, a new and useful and safe light, better pots and kettles, improved wares, whether of clay, or iron, or wood, tasteful or useful furniture, &c., &c., tells directly upon the comforts of millions, and adds essentially to the happiness of a whole people. What a change has been wrought out in the habits of nations by the invention of a metallic pen! So humble a matter as an envelope, how it has changed old ways, and brought about new forms and fashions.

But we intended only write an introduction to something else, while it will prove far more pretentious, in volume, than that to which it was designed to lead. We hope it may not, however, be destitute of interest, and may deepen the conviction of the reader as to the importance of the policy we contend for, towards various industrial pursuits.

Leaving the path into which we have been beguiled, by the inspiration of the moment, we desire to turn the attention of our readers to the progress that we have made in certain departments of useful industry.

POCKET AND TABLE CUTLERY—NEW YORK KNIFE COMPANY.

Those who have not examined these useful implements are by no means aware of the perfection to which this art has been advanced in this country.

With all implements, in the manufacture of which each piece demands a large amount of individual labor, that machinery cannot do, the cheap labor of Europe has heretofore affected very materially the success of American artists. So in cutlery, it has not been found possible to afford the jobber so great a profit on these goods as he is able to obtain upon imported articles. Hence their influence has not been in favor of domestic manufacture, but they all favor the sale of foreign cutlery.

But go into almost any respectable store where these articles are for sale, and among the handsomest and finest of the entire stock, are American knives. They are made in various places, and of various qualities. We are not able to give the location of many of these. We remember some years ago to have seen some fine pieces of table-cutlery from an establishment in or near Greenfield, Mass. But our memory does not enable us to speak definitely in relation to them. We are, however, enabled to state with entire assurance, in relation to the wares of

THE NEW-YORK KNIFE COMPANY, MATTEAWAN,

in this State. Some specimens of their manufactures were lately shown us, which would compare favorably with the very best English knives, and in answer to our inquiries, we learn the following facts:

The construction of this company is peculiar, and affords a satisfactory assurance that they must be successful. Every member of the company, or stockholder, is a skillful artizan, and nearly or quite every artizan is a stockholder. They are all Englishmen who have wrought in the best shops in Sheffield. They are men with families, having a permanent home in their adopted country, and are surrounded with every inducement to do all that industry and art can do, to insure success. That success they appear already to have achieved.

The company was formed by those enterprising men, on a very liberal foundation, but without cash. Scarcely five hundred dollars could be raised from the whole number. But by saving one-half their earnings, for two or three years, they have created a large capital, and are free from embarrassment.

Companies or individuals who will achieve such triumphs, are sure of success. It is indeed, as we have stated, already achieved. It is a prosperous company, a company deserving the patronage of our entire American people, as well for what they are themselves, as for the character of their work. They do honor to their adopted country. May no shadow ever darken their prospects. We are informed that every blade which they manufacture is STAMPED "New-York Knife Co., Matteawan." May all our retailers and purchasers, learn the exact position (in Duchess county) of that locality. They employ forty-seven hands, mostly men, and have a capital of about $20,000. They use an engine of 12 horse power. They produce about $3000 worth of cutlery per month. They have been organized about four years.

The position of importers, as already explained, towards these artists, deprives the company of the benefit of their influence, and hence they are obliged to find a market for themselves. This they do without difficulty. Their agencies cost no more than the jobber would demand for his commission, and wherever they exhibit their goods they make ready sales.

We have also seen and examined the goods of another of these numerous centers of wealth and industry, which our importers and jobbers would like to exterminate, and which are scattered all over our country. We refer to the

BRUSH FACTORY, LANSINGBURG, N. Y.

THIS is carried on by Messrs. Cross & Hoyt, whose warehouse is in Pearl st., in this city. The commencement and progress of this establishment, like that just described, is so illustrative of enterprise and perseverance, that we present it to our readers with some detail:

They commenced business in the year 1835 in a very small way, being all apprentices in the same shop, and subsequently journeymen, for some three years; and afterwards formed a co-partnership consisting of James Cross, John Moss, and Joseph Hoyt, under the style of Cross, Moss & Co. They hired a small shop and commenced in a small way, (doing the most of their work themselves,) in which they continued for a year or two. Mr. Cross then purchased a house and lot and built a small shop on the rear part of the lot, the village being laid out in streets and alleys; the said shop was in dimensions 25 by 13 feet, two stories high, in which they did their work for some time. Some of the old establishments at that time having been in business for several years, and being jealous of them, *prophecied* an existence of just six months. But the evil prophecied did not occur. *Now they have* an establishment only second in the country. Their factory building is 100 feet by 24, with two wings attached 50 by 18 feet—all three stories high, with cellar, wash-house, and bleach-house. They have a steam-engine of about fifteen-horse power, which moves machinery with which they do much of their work, such as sawing, boring, etc., etc. They use all kinds of wood in the business, as Rose, Satin, Mahogany, Maple, Birch, and Oak. The fancy woods come from South America and Brazil.

Of Bristles, they use more than 30 different kinds, varying in price from 35 cents per lb. to $3 50, according to quality. Those come mostly from Russia, and are the best in the world; some from Prussia, Poland, Germany, and France. There is also a large quantity packed at the West; at Cincinnati, Louisville, and other places.

They now keep about 30 men employed in the shop, and 25 boys, and some 80 women and girls. The men do the sawing, boring, planeing, etc. The boys do what is called drawing, that is, putting the bristles in the holes. This is effected by doubling wire and drawing it into the hole. They do the coarse work; the women draw the fine work, such as hair and hat brushes, etc.,—taking the work to their houses, while the boys and men work in the shop. The coarse work is all drawn in, one knot at a time, and is cut off, every row, as it is drawn, by large shears made for the purpose, which are screwed down on the bench, with blades 10 to 12 inches long and 3 inches wide. They cut it off generally with one cut, having a guage secured on one blade by which the whole brush is cut at the same length. They can turn out $150,000 or $200,000 a year, but the business will not yet admit of doing so much. Their sales however are increasing constantly.

Their varieties of work consist of the following kinds, viz.: Hair, Clothes, Tooth, Nail, Shaving, Shoe, Scrubbing, and Horse Brushes; also, Whitewash, Pain, Sash, Varnish, flat and oval Graining Brushes; also, Marking and Dust Brushes of every style and price. They make more than 250 kinds of styles of hair brushes alone.

Enterprise such as we have here described, deserves success. All these artizans are now reaping the fruits of persevering toil and industry under darker skies. We trust a constant sunshine will henceforth lighten their way to a happy and prosperous old age.

SENECA FALLS, N. Y.

[CONDENSED FROM HARDWAREMAN'S NEWSPAPER.]

This village affords a remarkable illustration of the beneficial influence of manufactures upon the public interests, as well as of the wealth and comfort and independence which are attainable through the same channel, to individuals, by the exercise of perseverance, energy and industry. It is most conspicuous for its success in the manufacture of iron.

1. Boat Building.—Although, from temporary causes, this business is not now in active progress, yet it has been a most important and profitable one to the village—having given a great deal of employment, and produced a great deal of wealth. I have heard that the boats built at Seneca Falls are accounted the best on the canal; and, with the characteristic energy of the inhabitants, I presume they will not abandon so valuable a branch of manufactures, but will engage heartily and vigorously in the improved style of boats which are now in requisition. But whatever may be the future of this branch of industry, it is certain that in the past it has largely contributed to the substantial advancement of the village.

2. Woolen Mills.—One very extensive, the other smaller.

3. Sash and Blind Factories, of which there are two—one being the largest, and perhaps the best appointed in the United States.

4. Grist Mills.—The tremendous water power existing here is largely used for the manufacture of flour. There are eight mills, having sixty run of stones! The vast consumption of wheat by these concerns is chiefly supplied by the west over the canal.

5. Hay and Manure Forks, of Hines' Patent Wire, are largely manufactured by Messrs. Gould, Henion & Co. This enterprising firm have lately considerably increased their capacity of production, and are now in a position to execute very large orders.

6. But the leading manufacture of the place is of Iron, and chiefly consists of the article of Pumps, although some other goods are manufactured to a great extent. There are here three extensive Pump Factories, beside two Foundries and Machine Shops. There are employed in these factories four and five hundred hands, and the value of the goods they produce is not less than half a million of dollars annually. They melt from 16 to 20 tons of iron per day—which, it is to be remembered, it mostly run into light and fine castings—and show every symptom of increasing their production.

In 1849, Messrs. Cowing & Co., produced about 60 pumps a week. In 1855 they produced about 600 pumps a week; and now they can make at about the of rate 175 per day, or 1,045 pumps per week!

Nor is their trade confined to Cistern Pumps. Their Deep Well and Force Pumps are amongst the very best and most perfect in the world. They are also manufacturing a very cheap and efficient Fire Engine, of which last year they made and sold 80; and they have recently gone very extensively into the manufacture of Thimble Skeins and Pipe Boxes, the demand for which is now becoming so wide spread and extensive. They employ constantly over one hundred men, keep in constant use about 30 lathes, melt every week nearly 80 tons of iron, and one ton of brass and copper, besides the large quantity of wrought, which they use in the mounting of their pumps.

Such is the result of fifteen years' manufacturing to this village, as yet so little known or spoken of. What would it be if it were left entirely dependent on "agricultural resources?" its population driven for employment to other places—its merchants bankrupt—its mighty water power unemployed! It would add another to the many proofs which New-York even now furnishes, that agriculture alone is not sufficient to employ the power, elevate the condition, and produce the wealth of a nation.

THE INDUSTRY OF CANADA WEST.

THE following lucid statements were sent to this office months since by our valued friend and correspondent, Mr. Robert Howell. But as it required copying before it could be placed in the hands of a compositor, it was given out for that purpose, and by accident was not returned *till very recently.* We now publish it, with the exception of statements regarding the *tariff in Canada*, which we believe have been changed since this was written.

ED. P. L. & A.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE traveler on the public road from Hamilton, C. W., to Brantford, will notice the large amount of pine timber in almost every direction. This pine is generally of large size, and of good quality. The steam mill is seen here and there sending up its cloud of smoke, especially on the government road from Paris to Hamilton. Water-power is scarce in these sections, streams being few and small. The price at Gault for common pine lumber is $13 per thousand feet, although I was assured by a large lumberman that his would average from 30 to 35 thousand or a hundred thousand of common. Such lumber would command $20 at Port Deposite. A great amount of lumber has been wasted here. Large extent of dry woods is seen in every direction.

The revenues and expenditure of the upper and lower provinces of Canada, from the parlimentary documents were as follows: The gross revenues in 1841, was £343,829 12s. 11d.; the expenditure for the same year was £291,398 11s. 7¾d.; In 1845, gross revenue, £708,447 3s. 8¾.; expenditure, £1,013,176 16s. 9d.; revenue 1851, £842,184 5s. 2d., and expenditure for the same year only, £634,666 6s. 8d.; the imports from Great Britain in 1850, were £2,407,989 4s.; in 1851, £3,012,033 2s. 6d.; from Br. N. American colonies, 1850, £96,404 19s. 6d.; and in 1851 £109,242 16s. 1d. The *Imports* from British W. Indies, 1850, £1,112 19s. 3d.; in 1851, £3,406 7s. 4d.; from the United States in 1850, £1,648,715 2s. 5d.; in 1851, £2,091,441 6s. 3d.; from other foreign countries in 1850, £91,303 19s. 4d. and in 1851, £142,574 0s. 5d. TOTAL IMPORTS 1850, £4,245,517 3s. 6d.; in 1851, £5,358,695 12s. 7d. The Exports of Canada in 1850, to Great Britain, £1,521,279 15s. 3d.; in 1851, £1,921,900 6s. 4d.; to Br. N. A. Colonies in 1850, £202,194 9s. 3d.; in 1851, £250,379 12s. 7d.; to Br. W. Indies in 1850, £2,094 0s. 6d.; in 1851, £978 6s. 9d.; to the United States in 1850, £1,237,789 17s. 11d.; in 1851, £1,017,886 3s. 3d.; to other foreign countries in 1850, £27,070 6s. 4d.; in 1851, £41,036 1s. 7d. TOTAL EXPORTS in 1850, £2,990,128 0s. 9d.; in 1851, £3,241,180 3s. 9d.

According to official report, Canada West contains 31,745,535 acres. By the census of 1852 it numbered 952,004 inhabitants. The province produces an annual amount as follows:

Wheat,	12,692,852	bush.	Potatoes,	4,987,175	bush.
Barley,	62,575	"	Other Roots,	229,121	"
Oats,	11,193,844	"	Butter,	15,978,315	lbs.
Buckwheat,	631,384	"	Cheese,	2,226,776	"
Maize,	1,606,513	"	Hay,	681,682	tons.
Peas,	2,891,503	"	Number of Horses,	203,300	
Rye,	479,651	"	Neat Cattle,	745,894	
Turnips,	3,641,942	"	Sheep,	968,022	
			Swine,	484,241	

Canada West raises three times the quantity of wheat raised by all the rest of British America; of barley, her produce falls short of that of Canada East by a few thousand bushels of oats. Canada West produces as much as all the rest of British America, of maize, peas and rye Canada W. produces more of each than all the rest of the provinces, of buckwheat, Canada W. produces a few thousand bushels more than Canada E., and a few thousand less than New-Brunswick. Canada East produces more hay than Canada West, but the Eastern province produces more potatoes and twice as many turnips than all the rest of British America, while of butter it (C. W.) produces more than all the other provinces by several millions of pounds, and of cheese, she produces more than three times as much as the rest of the British provinces. She raises many more neat cattle, sheep and swine, than all of the other provinces, but fewer horses than Canada East.

JOINT STOCK COMPANIES IN MASSACHUSETTS.

THE Secretary of State reports that there are filed at his office the returns of ninety-three joint stock companies organized under the General Corporation law of Massachusetts. The total capital stock of these companies is $5,698,700, and the amount paid in is $3,340,307 70. The company having the largest capital is the Lawrence Machine Shop, $750,000, which, at the time the return was made, had but $320,000 taken up, the shares being $50 each. The North American Patent Boot and Shoe Company (of whose location no report is given) has a capital of $300,000, but none of it has been paid in. There are seven companies with a capital of $200,000 each, but in the case of the Tremont Oil Company, Boston, none of the capital is reported as paid in. The Cheshire Glass Company, Cheshire, has $60,000 out of $200,000 paid in, and the Union Iron Works, North Adams, $81,000. The others are the Merrimac Lumber Company, Lowell; Boston Oil Company, Boston; North American Verd Antique Company, (since dissolved); and S. P. Ruggles Power Press Company; whose capital is all paid up.

The list of corporations includes a great variety of business, such as the American Book and Paper Folding Company, Boston, ($86,000 paid in); American Grist Mill Company, Boston, ($25,000 paid in); Leather Splitting Company, ($4,500 out of $50,000 paid in); Machine Stamp Company, ($7,500 out of $25,000 paid in); Rattan Company, Fitchburg, ($31,200 paid in.) Then there is a Soda Fountain Company, at Haverhill; Stereotype Company, at Boston; Whip Company, at Westfield; Iron Companies, Acid, Manufacturing Companies, Carpet, Earthenware, Flax, Papier Mache, Sugar Refining, Shoe, Coal (at'Bristol), Glass, Piano Forte, Rubber (at Edgeworth), Tanning, Foundry and Machine, Straw, Gas Light, Tool, Chair, Comb, Wire Fence, Shovel, Marble, Jewelry, Steam Drill, Persian Sherbet (in Boston with $12,000 paid in out of $32,000), Woolen, Patent Leather, Leather Splitting Cutlery, Tacks, Glass Engraving, Brick and Ice do.

The capital stock of thirteen Companies is under $10,000 each, the lowest being $5,000. The Comb Company at Holliston, has a capital of $50,000, or 500 shares at $100 each, all paid in. The Boston Flax Mills, at Braintree, has a capital of $50,000, all paid in. The Boston and Salem Ice Company, located at Lynnfield, has $34,946 20 paid in out of $50,000 capital. Of the very large capital engaged in the manufacture of Piano Fortes in this State, but $40,000 is invested under this law, viz, by Brown & Allen's *Piano Forte* Company, Boston.

BATSTO FARM AND AGRICULTURAL COMPANY.

A HOME FOR ALL.

THE Company announces the following plan. It certainly commends itself to the notice of those of small means living in or near Philadelphia. This Company has purchased a large tract of land, within one hour's ride of Philadelphia and adjoining the Weymouth Farm and Agricultural Company's land, comprising about thirty thousand acres, known as the "Batsto Tract," and situated in Atlantic county, New Jersey, between Mullica river (which is navigable five or six miles along its northern boundary for vessels of seven feet draft,) and the Camden and Atlantic Railroad; the former affording an outlet to New-York, the latter to Philadelphia, two markets that would absorb all the produce which this fine tract could raise.

"The tract is divided into twenty acres each; each farm fronting on a main road thirty feet wide, at an average value of ten dollars per acre, which is payable in weekly instalments of one dollar.

"One share will entitle the holder to a farm of twenty acres, besides a gratuity of four town lots, twenty feet front by one hundred feet deep, two in the Camden and Atlantic Railroad and two at the junction of the Air Line Railroad and Mullica river.

"Half shares will entitle the holder to a farm of ten acres, besides a gratuity of two town lots as aforesaid.

"The timber and wood will be moved from the tract, (except what the stockholders may desire to purchase,) the roads and streets opened, and the deeds made out and delivered, *without any expense* to the stockholders, which will enable them, immediately after the distribution to commence working their farms, and at the same time afford them ingress and egress to and from them over good roads.

"Hence it will be seen that what would be equivalent to a merely nominal rent of *fifty-two dollars a year for twenty acres of land, for four years*, would pay the purchase money, and entitle the holder to a deed in fee; whereas, if he should lease the land for four years, at the end of that time, he would have paid four times the amount in rent, and have no more right to the land than when he commenced.

"The 'Air Line Railroad' from New-York to Cape May, which is now located and under contract, and which forms a junction with the Camden and Atlantic Railroad on this property, being the shortest route from Philadelphia to Cape May by twenty miles, will give this tract a railroad front of twenty miles, increasing immeasurably the inducements to embark in this enterprise."

EXTRACT OF THE ANNUAL ADDRESS

BEFORE THE ALABAMA STATE AGRICULTURAL SOCIETY,

DELIVERED BY HON. C. C. LANGDON, OF MOBILE.

I beg, however, to tell the representatives of the people, that *something must be done.* I proclaim it here, in their presence, at the very door of the capitol, and in the presence of this vast and enlightened auditory, something must be done for the advancement of our State. She is lagging behind, far, far behind, all her sisters in the march of improvement, and every moment of inaction is placing her farther and still farther backward. Georgia, noble, enterprising Georgia, justly styled the "Empire State of the South," is tapping our eastern borders at points with her railroads—yea, even penetrating our center—and drawing from us products and trade that should and would, were the right policy to prevail, find their way to the commercial emporium of our own State. Savannah and Charleston are reaping the rich fruits of the wise and liberal policy of Georgia and South Carolina, in a largely increased and rapidly increasing population, and the rapid accumulation of wealth, while our own cities are neglected and suffered to decay, and our great works of internal improvement are permitted to struggle with adversity, to languish, to die. And yet, those in authority, with the strangest and most unaccountable indifference, sit quietly by and view the scene of ruin before them, without thinking of a change of policy, without one effort to save the State from the ruin that impends. And why is it so?

Ah, say you, all this sounds very well, but *the State is in debt*, and, until that burden is removed, it would be bad policy for the State to appropriate money, loan its credit, or extend aid in any form, to any enterprise, however meritorious it may be. The State debt is the barrier to all improvement. *The State debt!* Why, gentlemen legislators, do you expect to pay that debt by driving trade and commerce out of the State? by closing up all the avenues of prosperity, and permitting the State to go to decay and ruin? by depriving your people of the means of employment, and forcing men out of the State? What constitutes a State? Is it not *men?* 'Tis man, laboring man, with his stalwart arm and stout heart, and a soul inspired with that energy and strength which a consciousness of his position as a *freeman* can alone impart—man, proud, free, intelligent, laboring MAN—this, it is, that constitutes a State, gives it its strength, its power, its wealth, its renown. Adopt that policy, then, which shall fill your State with men. Thousands of acres of land now lie within your borders in a state of nature, unculivated, simply for the want of facilities for the transportation of its products to market. Build your railroads, and these lands will be brought into cultivation, and be covered with men. There are thousands of acres, again uncultivated, though convenient to market, simply because not adapted to the cultivation of cotton, under the mistaken impression, that no other agricultural product can be cultivated to advantage. Dispel this illusion, convert these wildernesses into gardens, and orchards, and fields of waving grain, and they will become a nursery for men. Mines of wealth lie imbedded in the earth, and all that is wanted to draw it forth from its hiding place, is men, with the will and the energy to do. You have facilities for manufacturing equal to any State in the Union—water power, the raw material, whether of cotton, wood or iron, and the men to labor. Would you then pay your State debt! Adopt that policy that will bring your waste lands into cultivation, and develop your vast resources. Build your own ships, your steamboats, your locomotives, your railroad cars, and your engines. Your forests will furnish you with the best of timber, and the earth on which you tread, with the iron and the coal. Push forward your railroads. Connect *North* and South Alabama—the waters of the Tennessee with those of the *Gulf—and bind* the two sections together with iron bands. The capital of *your State must* be united with your commercial emporium by railroad; and that *magnificent* enterprise, which is to connect the great West with your own beautiful city on the Gulf, must be urged onward to a speedy completion. These great works completed, and Alabama will enter upon a new career of existence.

[This is excellent, in matter and manner. A few living energetic men like Mr. Langdon, have the power, if they would but exercise it, to regenerate a State, even though it were the most inefficient in the Union.

Ed. P. L. & A.

FACTS IN RAILROAD MANAGEMENT.

The following facts regarding eight of the principal railroads of Massachusetts are developed by the reports to the Legislature, and furnished by a non-stockholder:

1. The cost of passenger transportation is 1.062 cents per passenger per mile.

2. The cost of merchandise transportation is 3.095 cents per ton per mile.

3. In passenger transportation $41 98 per cent of the receipts therefrom are absorbed in expenses.

4. In merchandise transportation $89 52 per cent of the receipts therefrom are absorbed in expenses.

5. The expenses of railroads are almost invariably determined by the weight carried over the rails. For instance: The Eastern road, upon which passenger traffic predominates, is operated at an expense of $3,670 per mile of the length of the road; whilst the Lowell, upon which merchandise traffic predominates, is operated at an expense of $12,478.

6. The cost of renewal of iron upon railroads is an infallible index of the magnitude of expenses. For the preceding reasons, the cost of that item on Eastern road is but $390 per mile of the length of the road, while upon the Western it is $1,390.

7. Of the expenses of railroads, thirty per cent. are absorbed in maintenance of way, or road bed; twenty per cent. in fuel and oil; twenty per cent. in repair of engines, tenders and cars; ten per cent. in special freight expenses, and the remainder in passenger, incidental and miscellaneous expenses.

8. The weight of the engines, tenders and cars upon passenger trains is nine fold greater than the weight of the passengers.

9. The weight of the engines, tenders and cars upon freight trains, is scarcely one-fold greater than the weight of the merchandise.

10. For cheapness, railroads cannot compete with canals, in transportation of heavy descriptions of merchandise; the cost of carrying merchandise upon the Erie canal ranges from two to sixteen miles per ton per mile; whilst upon several of the principal railways of New-York and Massachusetts the cost of carrying merchandise ranges from thirteen to sixty-five miles per ton per mile.—*Boston Post.*

BALTIMORE AND OHIO RAILROAD.

[A correspondent of the Cincinnati *Commercial* gives a very full description of scenery, etc., along this route, from which we collate the following as worthy the notice of all travelers who can select their own routes. We hope, ere long, to testify more entirely from our own personal experience.]

THE ROAD OVER THE MOUNTAINS.

This road is of the most substantial construction, is equipped with an incalculable armament of cars and locomotives, of all sizes and descriptions, for every purpose, and is managed with consummate energy and tact. The scenery along the route is often exceedingly beautiful, occasionally grand, and at times approaches sublimity. The Blue Ridge summits are in the distance. The chasm where the Potomac rent the mountains, at Harper's Ferry, presents to the passer by (or through, rather) on the flying car, a scene of startling grandeur.

Among the mountains the road curves often, and it sometimes seems wonderful that the engineers happened to find that particular path along the rocky steeps which could be made the high road for the mighty horses of iron and stupendous caravans that follow them inevitably over the granite deserts. At Kingwood tunnel, which is near a mile long, situated two hundred and eighty miles from Baltimore, may be seen, I think, the grandest display of railroad equipments in the world. The tunnel is being arched, and is not serviceable at this time, but will be finished in a few weeks, and over the ridge towering five hundred feet above the tunnel that pierces its heart of rock, the trains are taken with all their loads of passengers and freight, with but little loss of time; and a drowsy passenger would only be disturbed into a consciousness of wondering why the train seemed to run first one way and then another—to be capering forward and back on heavy grades. The facts in the case are hard to explain, but are about these. Two tremendous mastodon locomotives, besides which the engines that rattle along the levels seem play-things, are attached to the train, one at each end, an dthe track to be followed is called a "Y," from the peculiar zigzag which is made. The train is rushed along the first side of the "Y" down into the point of the angle, and along the tail of the letter until it can be switched off so as to run backward up to the other prong of the letter, until any further progress in that direction is impossible, to be again switched on still another line of track. In this zigzag way the summit is passed, and so also is the descent made.

Somewhere about the western end of the tunnel, the mail train from Baltimore bound west, and the express train from Wheeling to Baltimore, meet in the night, and a half dozen ponderous freight trains are at the same time toiling along the steeps, each with two engines, great coal burners, the jets of flame from which shed a broad ghastly light over the wild scenery. There are at times a score of these prodigious mountain engines in sight or within hearing, and this herd of iron mammoths of the mountains seem like Titans, rejoicing over the conquest of a chaos. Their signal-whistles, booming out questions and responses, sending their echoes roaring around the dismal precipices, and piny slopes, hint of the emotions of humanity in their medolations—seemed to be toned as human voices, solemn and deep in relentless resolution, plaintive in the distress of doubt, or shrill and thrilling with exultation. Their voice is that of the giants of this iron age, speaking from steep to steep, while, "every mountain finds a tongue" to call loud for help, we may imagine, against their fiery and grim conquerors, the wheels of victorious cars roll triumphant over their rude breasts. When passing this place at night, which most passengers do, the glare of the locomotive fires reveals profound abysses beside and beneath the track. Far down may be seen the dim tops of pines and cedars, standing like ghosts in the snow-whitened and flinty gulfs. And perhaps on the other side of the car, at the same moment, are jagged and toppling cliffs, so lofty that the eye can hardly trace the outline of their black peaks in the skies.

Yet the extreme peril of these wild places exist only in appearance. The road has been hewn in the living rock, graven with iron, where it will endure forever. The trussel work and bridges are constructed with the utmost solidity, and at night, guards, carrying large lanterns, are placed at short intervals along the track, to give warning of the imminence of danger, or the assurance that "all's well."

The path subdued by civilization over the mountain is, however, but little more than sufficiently broad to make railroad facilities good. At the point where the passengers get their supplies in the mountainous regions, they are often feasted on venison killed by the roadside.

RAILROADS IN NEW-JERSEY.

It is marvellous to note the rapid extension of railroads. Several States are chequered with them, running in all directions. A recent number of the *Iron Horse*, a small but ably-managed sheet, published in Paterson, contains an account of the roads of the State, from which we condense the following:

Paterson and Hudson River Railroad.—From Paterson, to Bergen Hill, where it unites with the Erie road. Length, 13½ miles, cost, $630,000.

Paterson and Ramapo Railroad.—From the Junction to the New-York

State line, near Sufferns, on the Erie road. Length, 16 miles. Capital paid, $248,225. Debt $100,000. The Erie Co. pay for it $260,500 a year.

New-Jersey Railroad.—From Jersey city to New-Brunswick. Length, 33 miles; capital paid in, $3,482,850; debts $690,000; value of property on hand, $4,309,422; pay dividends of 10 per cent.; number of passengers last year, 2,164,471, besides commuters; tax paid to State, $33,450.

Camden and Amboy Railroad.—From Camden to South Amboy, 63 miles. and there connecting with this city by boats. A branch reaches from New-Brunswick to Trenton, 26 miles, reaching Philadelphia by the Philadelphia and Trenton road. A branch extends from Bordentown, 6 miles. The Camden and Amboy road owns most of the stock of the Philadelphia and Trenton, the Belvidere, Delaware and some others, and also the Delaware and Raritan Canal, 43 miles long, 50 feet wide, and 7 feet deep.

The company pays 10 cents duty on each passenger, and also a duty on freight. The amount paid last year was $55,562; the canal yielded $43,436; cost of road and equipment, $4,877,981; invested in other roads, $2,563,000; capital paid in, $3,000,000; debt, $11,150,000; more than half due in Europe; joint earnings last year, $2,017,727; working expenses, $1,055,180; dividends, $360,000, or 12 per cent.

New-Jersey Central Railroad.—From Elizabethport to Philipsburg, opposite Easton, Pa., finished for both wide and narrow guage. Length, 63 miles capital paid in, $2,000,000; cost of road, &c., $3,734,149; debts, $2,266,176; cash and property on hand, $532,027.

Morris and Essex Railroad.—From Newark to Hacketstown, 53 miles; and branch also extends to East-Bloomfield, 3 miles. The main road is to extend to the Delaware river, near Belvidere. Capital, $1,057,805; cost, $636,550 and $20,500 sub. to the Bloomfield road; debts, $375,000; gross earnings, $225,893; dividends last year, 6 per cent.

Freehold and Jamesburg Railroad.—A branch from Jamesburg to Freehold, 11¼ miles, owned chiefly by the Camden and Amboy; stock, $157,900; debt, $70,000; cost, $218,782.

Millstone and New-Brunswick Railroad.—From M. to N. B. 6½ miles, capital, $100,914; cost, $111,000; debts $10,086.

Burlington and Mount Holly Railroad.—Six miles, capital, $70,000; cost, $99,551; debt, $35,000; dividends last year, 5 per cent.

Belvidere and Delaware Railroad.—From Trenton, along the Delaware to Belvidere 64 miles, owned by Camden and Amboy; capital, $1,000,000; cost, $2,619,000; debt, $1,619,000; gross receipts last year, $161,350.

Flemington Railroad.—A branch of the preceding from Lambertville to Flemington, 12 miles, and owned by C. and A. road, capital, $150,000; cost, $279,220; debts. $129,220.

Warren Railroad.—From the Delaware river, near the Water Gap, to New-Hampton, on the New-Jersey Central, 18 miles—nearly finished; a tunnel will be nearly 3000 feet long; cost about $1,000,000.

Camden and Atlantic Railroad.—From Camden to the ocean at Absecum Bay, 60 miles; capital $369,320; cost, $1,729,642; debts, $1,532,130; receipts last year, $122,415.

Sussex Railroad.—From Waterloo, on the Morris and Essex railroad to Newton, 12 miles; capital $150,000; cost, $352,464; debt, $202,464, built for the iron trade and owned chiefly by Messrs. Cooper and Hewitt of this city.

Morris Canal.—From Jersey city to Easton, 102 miles.

CANNEL COAL AND ITS PRODUCTS.

IMPROVEMENT OF COAL RIVER.

A PROPOSITION is now before the Legislature for an increase of the capital stock of the "Coal River Navigation Company," in the additional sum of $100,000. One hundred and Twenty-two Thousand dollars have already been expended by the Company in the improvment of the river; and it is now asserted, after the most careful estimates, that by a further expenditure of one hundred thousand dollars, the entire work can be completed. The "Western Mining and Manufacturing Company" own immense, and we might say, practically, exhaustless fields of Cannel coal bordering this stream, at a distance of thirty-six miles from its mouth, and, as a matter of course, are deeply interested in the progress of this improvement. To facilitate the completion of it, they now propose to purchase of the State her bonds to the amount of Sixty Thousand Dollars, (three-fifths of the increase asked for by the Navigation Company,) thereby investing the State with the funds necessary to pay her proportion. They further propose to subscribe the remaining forty thousand dollars at once, so there may be no delay in the prosecution of this great work.

It is estimated that 5,000,000 bushels of coal will be shipped annually over this improvement, to the Big Kanawha, thence to the Ohio River. The tolls accruing to the company, will be about one cent per bushel, which would be $50,000 on the aggregate amount. The tolls on shipments of coopers' staff, sawed lumber, &c., &c., and upon return trips, will not fall short of $15,000. If these estimates are verified, and from the data before us we doubt not they will be fully—the work will be a profitable one to the stockholders, while, at the same time, it will develop the rich mineral treasures of the section of the country it traverses. The coal fields of Pennsylvania are taxed in some instances as high as four hundred dollars per acre, pouring annually into the treasury of the State immense sums of revenue. It is but fair to infer that, with equal facilities of transportation, this Commonwealth would find in the coal fields of Kanawha and Boone counties equally as prolific sources of wealth. The Covington and Ohio Railroad, which is but a continuation of the great Central route, crosses Coal River near its confluence with the Kanawha. At an early day after the completion of these improvements, it is not unreasonable to assume that the great superiority of the Cannel coal over all other, as an article of fuel and a producer of light and heat, will bring it into general use in the eastern cities. Three-fourths of the Cannel coal, yet discovered in United States, lie in Western Virginia, constituting one of the richest mines of wealth that has ever been developed in any country, not excepting the auriferious streams and hills of California.

From this coal, is extracted, at a cost not exceeding 16 cents per gallon, a valuable lubricating and burning oil. Probably some of our readers may have noticed, a few evenings since, upon the clerk's table of the House of Delegates, a lamp containing this oil. The clear, bright flame emitied, actually made the candles around it look dull and dim. It burns free from all offensive odor and smoke, and this fact, in connection with its cheapness, must insure for it an extensive and general use. The yield is forty gallons per ton. It also yields thirty gallons of benzole per ton, which is easily convertible into gas, and must eventually supercede the gas at present in use in our cities. From twenty to twenty-five pounds of clean, white wax are also produced from a ton of Cannel coal, which are made into candles of adamantine firmness.

Some fine specimens of this coal, from the mines of the "Western Mining and Manufacturing Company," have been exhibited here during the session, by J. E. Peyton, Esq. A lump has been upon the clerk's table, in the Hall of Delegates, for the past week or two. It has been very justly admired for its firm and beautiful texture, and its freedom from dirt.

We hope it will be the pleasure of the present Legislature to extend its aid to the Coal River Company, and place them in a condition to develop the treasures of our State. The operations of the mining companies interested in the improvement of Coal River, will be greatly retarded if something is not done before the adjournment.—*Richmond Dispatch.*

VALUE OF THE FRUIT CROP, CULTURE, ETC.

At a recent Legislative Agricultural Meeting in Boston, the culture of fruits was discussed, Mr. Wilder, the Pear King, being in the Chair. He remarked that the annual crop of Fruit was estimated to exceed $30,000,000 in value in this country. It was nearly equal in amount to the Potato crop. Fine large fruits were produced in the South-western States and in California. He thought we should become exporters of Fruit, and it was well to inquire what kinds were best adapted to our uses.

He proposed to confine his remarks mostly to "The Pear." The prerequisites to success were the choice of a congenial soil and the preparation of it, in which was included perfect drainage, sub-soiling and trenching.

A safe method is to raise new varieties from our own seedlings by planting ripe seeds from the best specimens. Many pears did well on Quince Stocks, although there was an impression prevailing against them. The quince was a gross feeder and the soil must be made rich to supply its wants.

Pears that were to be kept for some time should generally be gathered a few days before they arrive at maturity. They should then be kept at a low temperature, so that the *ripening process* could not commence until it was desired. This process required to be checked during the warm autumnal days of Indian summer. He regretted to be obliged to say that after building four different "fruit houses," and trying them all, he was obliged to come to the conclusion that the use of ice was the only method that could be depended upon to control the temperature required in preserving pears beyond the natural period of their ripening.

As to the profit of Fruit Culture it was equal to the profit of any other crop. One instance was cited in which an acre was set with pear trees in 1848. Quinces were produced between the rows of pear trees. In the fifth year the owner had on this acre 120 bushels of pears and 60 bushels of quinces. Many of the pears were sold at five dollars per bushel, &c.

INSECTS INJURIOUS TO VEGETATION.

LEPIDOPTERA CONCLUDED.

Phalenæ Moths.—We now enter upon this third division of Lepidoptera, which includes a great variety of insects called millers or moths. They vary in size, color, and structure. Some are very minute, while others, like the Owl Moth, expand eleven inches. The females are sometimes destitute of wings, or are furnished only with very small ones.

The distinctive character of moths was given in the commencement of this series, and we need not repeat it. Moths are generally classified in seven groups: The first is that of

Spinners; Bombyces.—These insects are generally thick bodied, with feathered antennæ, tongue or feelers very short or wanting, thorax woolly and the fore-legs often very hairy. Their caterpillars have sixteen legs. The first group are called

Lithosiadæ, or *Lithosians*, from the Greek lithos, a *stone, as these insects* live in stony places. They are not very destructive. We *will however* mention the Deiopeia bella, as one of the most elegant of butterflies. *Its* forewings are deep yellow, crossed by some six white bands, on each of *which is* a row of white dots. The hinder wings are scarlet; the thorax is dotted with black. It expands about 1¾ inches.

Arctiadæ or *Arctians*, or *Tiger Moths.* These have shorter and thicker feelers than the Lithosians, and a very short tongue; antennæ doubly feathered, usually, on the under side; wings not crossed on the back, but are roofed or sloped downwards on each side, when at rest; thorax thick, abdomen short and fleshy, and usually dotted; fore-wings are variegated, hind-wings red, orange or yellow, and spotted. They fly only by night.

Many of their caterpillars are quite destructive. When about to undergo transformation, they creep into the chinks of walls and fences, or under stones and leaves, and cover themselves with rough cocoons.

The *Arctia Virginica*, or *Yellow Bear* of Dr. Harris, resembles the Ermine Moth, of England. It is white, with black points, with a yellow stripe between them, while the hips and thighs of the fore-legs are yellow.

The Salt Marsh Caterpillar is frequent on the sea-board. The best preventative to their ravages is to cut the grass early in July, while the insects are small and feeble. The Lophocampa, or crested caterpillar is common on the Button-wood or Sycamore, in July and August.

The *Liparidæ* or Liparians form the third group. They are small, slender catterpillars, bright yellow, with long fine hair, but they are not very numerous. They are sometimes found on apple trees and on other trees and shrubs.

The *Lasiocampadæ* or *Lasiocampians* are woolly thick bodied moths, and form the fourth group. The caterpillars which swarm in neglected nurseries and orchards belong to it. The eggs are placed in rings round the ends of branches, and are covered with varnish. The caterpillar comes forth in early spring, and forms a web among the forks of the small branches. In crawling from twig to twig, they spin a slender thread, which serves as a guide on their return. They eat at certain hours and then retire to their shelter. They are about two inches long, with black heads, a whitish line on their back, with fine black waved lines or stripes and spots on the sides.

To guard against these insects, different means are employed. To destroy the eggs in winter or early spring, is the first. This may be done with the thumb-nail and fore-finger. After they are hatched, a brush with a long handle may be used effectually, or a mop or sponge may be more convenient. These should be used with soap-suds, or white-wash, or with some cheap oil. This is indispensable, and should be used as long as any insects are to be found.

The *Clisiocampa Silvatica* or *Tent Caterpillar* is often numerous in some of the States, so as to strip a forest of oaks. They are thus found in Virginia. The insect is a light blue color, greenish on its sides, two inches in ength—spots are scattered upon it.

The *Atticus Acropia*, an insect that expands six inches or more, forms its cocoons of silk. Limited experiments have been made in substituting this for the silk worm in the manufacture of silk.

Other insects might be described under this division of the order, but they are not very numerous nor very troublesome, nor is there any peculiar application to be used in guarding against them. Hence we pass on to the next division.

MASSACHUSETTS HORTICULTURAL SOCIETY.

GRAPES, VINES.—We have received from Mr. Wight, Corresponding Secreary, the Annual Report of this efficient Society for 1855, with the Scheduel of prizes for 1856.

From the valuable information it contains we copy the following upon the cultivation of grapes. Mr. Simpson is a gentleman of education, of sound practical sense, and large experience, and what he says may be relied upon with entire confidence. For the sake of reference by the reader hereafter we annex a separate title.

GRAPES—TWO CROPS A YEAR.

It will be remembered that M. H. Simpson Esq., gave us a fine display of grapes in January, 1855, and also furnished an article (see report of last year) on the feasibility of producing two crops a year. July 7th, 1855, Mr. S. made a fine exhibition of his several varieties of grapes, grown on the same vines which produced the crop in January preceding. The berries were fully grown, and well ripened. Accompanying the sample for the Committee to est, was received the following note from Mr. S.:

To the Chairman of the Fruit Committee:

DEAR SIR,—The grapes I exhibit to day are from vines which gave the crop of fruit exhibited in January last. This is the third crop in succession on the plan of two crops a year, and thus far the vines exhibit no injury. My heory of growing them is, that when the fruit is ripe, the buds and wood are also ripe, and ready to give a new crop, if you give a proper time to naure; that the vines will not be injured, as the root throws out new spongioles, which, with the new leaves, are the reciprocal workshops that make the sap for fruit and buds. The important requisite is, that the spongioles, are well supplied with food. With regard to rest, my theory is, that they rest at night; the leaves do not work in darkness. The experiment I have made thus far confirms my theory in every respect. It applies also to all fruits, say peaches, pears, &c. If attention is paid to the supply of the root, two crops can be grown, and give a double quantity without injury to the vines.

Yours, truly, W. H. Simpson.

Saxonville, July 7.

CULTIVATION OF NATIVE GRAPES FOR FRUIT AND FOR WINE.

We have received the Annual Report of the Philadelphia Society for promoting agriculture, read before them on the of 2d April. We thank the unknown friend who sent to us so promptly.

The Report is well written, and enforces the propriety of encouraging the growth of native grapes, both for the fruit, and for wines. As the latter may be thought to come in collision with the temperance question, a special effort is made to show that "the failure" of the temperance movement has resulted from its false principles, which denounce the use of wine as well as of distilled liquors.

It does not yet appear that the temperance movement has failed, nor is it yet proved that the people of this country can reform their habits thoroughly and with assurance of a permanent reform, while wines are used as a common drink. In some countries, and in certain states of habit and opinion, etc., this may prove to be sound logic and safe practice. The argument, for this community, we think has proved itself on the other side. But much depends on circumstances. We do not however hesitate to commend this kind of production, for such uses as may be justified.

The writer, we perceive, falls into an error, on page 5, in saying that the "Ashburnham wine" is so named from a county in Massachusetts. Ashburnham is a very respectable township in Worcester county, adjoining the town of New-Ipswich, in the State of New-Hampshire. It abounds in various forms of mechanic arts and manufactures. We have never seen the vine grown there.

MR. BRACKET'S VINEYARD.

MODE OF TRAINING VINES.

We have been highly interested by reading the report of Dr. E. Wright, Chairman of the Committee on Fruit, made to the Massachusetts Horticultural Society, and published in the March number of Hovey's Magazine of Horticulture.

Among the many things and facts there brought forward, we find a communication of C. A. Bracket, of Winchester, giving an account of his "little vineyard," and his mode of managing his vines. We are persuaded we cannot do our grape cultivating friends better service than by giving the following extract from his letter:

"My little vineyard," says he, "is situated on a side hill facing the west, protected on the north by a belt of pine woods. I should have preferred a more northern or eastern aspect. The soil is by no means what would be called a strong one; it consists of from four to six inches of turf mould, with a reddish subsoil about two feet deep, resting upon a bed of blue gravel. In preparing for the vines the ground was trenched two feet deep, and the top soil put at the bottom. Stakes eight feet long were then set at the distance of seven feet apart each way, one vine was planted to each stake, and immediately cut down to two eyes, (or buds.) And here let me say a word as to the time of setting the vines. My experience is greatly in favor of fall planting. A vine set in Autumn (and it should be done as soon as the leaf falls,) will in three years be as strong and capable of bearing a crop of fruit as one of the five years old set in the spring.

The training of my vines is at once simple and ornamental. The first year two shoots are allowed to grow, and as they elongate are carried spirally, both in the same direction, about five inches apart around the stake, and this is continued until they reach the top. The laterals are allowed to grow at random. In the fall they should be pruned back to within eighteen inches of the ground, and the laterals to one eye.

Second year, continue the two canes from the two uppermost eyes, as directed in the first year. The laterals will require summer pruning. In the fall cut back the canes to within eighteen inches of last year's wood. Continue this course until the vine is established the whole length of the post, whatever surmounts it to be cut back. The fruit is grown upon the side shoots, and the pruning is on the short spur system. The form of the vine may be shaped to the taste of the cultivator; that of the pyramid is decidedly best.

Those who understand the nature of the vine will readily perceive the advantage this system offers. The vine is thus kept at home. The light and air circulate freely through it. The buds break easily, there is no tendency in one part to rob the other of its due proportion of sap, and when once established requires less care than any other mode of training.

Some of my vines, the first year after planting, were watered with sink drain water, and being satisfied that it injured them, I have discontinued the practice, and have since root pruned them, in order to check too free a growth of wood. Many of my neighbors injured their vines by giving them large quantities of stimulating manures, such as fresh stable manures, dead horses, and other animal manures, thereby exciting them to make an increased growth of long jointed wood. I grow my vines for the fruit, and am satisfied if they make a few feet of short jointed wood, and the only manure (if manure it may be called) which I now use, is a top dressing of Anthracite coal ashes.

Mr. Bracket speaks highly of the Diana Grape, as being hardy, early, and the grape holding on well even if suffered to hang out late. We think his hints and experiments worth attending to.

GOOD CROPS SOUTH.

NORTHERN farmers do not manopolize all the good crops. We find the following in a Georgia exchange. Mr. Dorr raised on a Cambridge plantation, as follows:

There were 120 acres of very old land in corn; 40 acres in cotton, 30 of which were good fresh land and 10 of old land, 5 or 6 of which were manured with stable and lot manure. The number of hands employed was 1 in number and rated as 9 good hands. The total amount of the crop and expenses, including provisions, negro clothing and shoes, blacksmith-work and iron, overseer's wages, &c, &c , is as follows:

Corn,	2,200	bushel	at 75 cts.	$1,650 00
Wheat,	175	"	at $1 50	260 00
Oats,	400	"	at 50 cts.	200 00
Barley,	27	"	at $1 00	37 00
Potatoes,	50	"	at 50 cts.	25 00
Pinders,	50	"	at $1 00	50 00
Fodder,	25,000	lbs.	at 50 cts per cwt.	125 00
Pork,	2700	lbs.	at 8 cts ,	226 00
Cotton, 48 bags weighing (averaged) 388 lbs., making 18,624 lbs., sold at 10 cts.,				1,862 40
Total,				$4,42 540
Deduct Expenses,				1500 40
				$2,925 00

Equal to $325 00 per hand.

The land was prepared by ploughing as deeply as possible, then ploughing deep the first working, not so deep the second working, and finished with surface culture. Each ploughing was followed with a good hoeing, both for corn and cotton.

The following account is given of a crop raised in another "District" known as "Dark Corner," which we cannot locate; quantity of land not given.

Gross proceeds of crop were as follows:

Cotton,	34,240 pounds sold for	$3,147 36
Corn,	2000 bushels which, together with peas, shucks, fodder, &c., worth	2,000 00
Potatoes,	300 bushels	100 00
Wheat,	100 "	150 00
Oats,	600 "	300 00
Cotton seed,	2,300 bushels	345 00
Pork,	700 lbs. net	560 00
Total products		$6,602 36

Gross per hand $550 19. I worked twelve hands, eight head of horses and mules together, and used no guano.

Deduct from the above amount of		$6,602 36
For feed of eight head of work stock,	$600 00	
For feed and clothes for hands,	720 00	
For smithing and iron,	36 00	
Dr.'s bill for these hands,	00 00	
Interest on land, negroes and mules,	1,250 00	
Total expenses,		$2,606 00
Net amount of crop,		$3,996 36

Net amount per hand, $333 03

This is in the region of the Dark Corner, where land rates from three to eight dollars per acre.

I broke up my cotton and corn land both with a long scooter or bull-tongue plough, as you may please to call it. My cotton-land was laid off from thirty to thirty-six inches according to quality, bedded with a turning plough. I run round my cotton with a turning-plough, board side next the cotton, and followed with the hoes chopping it out; after which I replaced the bed to the the cotton as quick as possible, and every working after I endeavored to put a little more dirt to the plant, and by so doing your cotton will be well formed and mature early. On the other hand if you work your cotton by taking the bed away (as is the case with some) and not replacing it, you may produce a large weed with but few forms and these very late.

PROFITS OF FARMING.

We continue our statements on this subject, gathered from different sorces. We first give an extract from the *Country Gentleman*, in reference to

AGRICULTURE IN VERMONT.

From 13 acres harvested in Oct. last, 1600 bushels in the ear of sound corn, and 24 of soft corn. Though but little of it has yet been shelled, it is fair to count it at 800 bushels exclusive of the soft, which cannot be shelled.

Value of corn, 800 bushels, delivered at railroad station, 3 miles, at $1 12½	$900 00
Value of corn, soft, 24 bushels at 25 cts.	3 00
Value of 28 cart-loads of pumpkins at 75 cts. per load,	21 00
Value of stalks for winter feed of stock at $3 per acre,	39 00
Total	$963 00
Expense, (including delivery of the corn at depot,)	365 30
Profits,	$597 70
Within a fraction of $48 98 per acre for taxes on and use of land.	
From fifteen and a half acres of oats were threshed by horse-power, in November last, 1006 bushels delivered at railroad station, as above at 50 cents per bushel,	$503 00
Fifteen and a half tons straw, worth at barn $6 per ton,	93 00
	$596 00
Whole cost of production, with delivery at depot, $14 07 per acre,	$218 09
Profits,	$377 91

or $24 38 per acre. The land on which these crops were grown is valued at $100 per acre, which is about the price they command when offered for sale.

A farm of one to three hundred acres, in many localities in Vermont, with good buildings and stone fences, surrounded with permanent roads and bridges, churches, school-houses, and the like, can be bought at a price that—counting all these improvements and advantages to the farmer—will hardly leave the soil at $1 25 cents per acre.

The next statement is of a lot of land in

EPPING, N. H.—This statement was not made on account of any peculiarity about it, but to show the proper manner of keeping farm accounts. The crop was grown in 1855.

Lot No. 11 in field A. containing about 1¾ acres. Soil on this lot is variable, part being a deep yellow loam, having a large preportion of mineral elements in its composition, the balance a dark-colored moist soil.

Preparation.—In Oct., 1843, 24 loads of yard compost were spread on the dry part of the lot, and the sod turned under with a Michigan double plough, 9 inches deep. May, 1855, 12 loads of manure were harrowed in. Planted with corn, guano compost put in the hill; produced a good crop. Oct., 1854, cross-ploughed the lot.

April 1856, for ploughing, - - - -	$3 00
For sowing, harrowing, and rolling 4½ days, -	3 37
For seed wheat, 1½ bushels, - - - -	3 37
Harvesting and threshing, - - - - -	7 92
Interest and taxes on land, - - - -	4 85
	$21 51
Contra, by 19 bushels of wheat, $2 25 per bushel,	42 75
Lot straw, - - - - - - - -	8 00
Value of crop - - - - - - -	$50 75
Cost of growing, - - - - - - -	25 61
Cost per bushel, - - - - - - -	71
Leaving a profit of - - - - - - -	$29 24

The variety of wheat grown is known as the Gilman. Also a patch of peas were grown on this lot, producing an abundance of green and ½ bushel of dry peas, for which I have not credited the whole crop.

Lot No. 13, in field A, contains about ¾ of an acre.

Soil is a fine dark-colored loam, very mellow.

Preparation.—Plowed and planted similar to No. 11.

May 3, 1855, for ploughing, - - - -	$2 00
Harrowing and sowing, - - - - -	1 00
1 bushel seed wheat, - - - - -	2 25
Harvesting and threshing - - - - -	4 50
Interest and taxes on land, - - - -	3 00
	$12 75
Contra by 11 bushels wheat - - - -	$24 75
Lot of straw, - - - - - - -	4 00
Value of crop, - - - - - - -	$28 75
Cost growing, - - - - - - -	12 75
Profit of crop, - - - - - - -	$16 00
Cost per bushel, - - - - - - -	70

The above crop was injured by worms, thining it early in the season.

The wheat grown on this lot is known as the White Flint wheat, yielding beautiful white flour. The straw grows large and appears hardy; heads of the same length do not produce as much wheat as those of other varieties; the berries do not set thick on the head, but grow at some distance apart, giving them a loose or open appearance.

FOR THE PLOUGH, THE LOOM AND THE ANVIL.

BROOM CORN, SORGUM SACCHARATUM.

FOR many years this very useful plant was almost exclusively a "Yankee Notion." It is an exotic, brought from the East Indies, yet seems well adapted to our climate. For near a half a century its culture was confined mainly to a few towns in Old Hampshire County, on Connecticut river. It is now cultivated in some parts of New-Jersey, in the Mohawk Valley in New-York, and in Ohio, Indiana and Illinois. In New-England, where the farmers are always ready to engage in the cultivation of what will pay best, Broom Corn is still confined to the Connecticut Valley, and mostly to some ten or twelve towns in Massachusetts.

The Corn Broom has now become an indispensible article in most civilized American families. The unwieldy "splinter broom, which our grandmother were wont to elaborate, by dint of patience and perseverance, from ash, maple and hickory, have yielded to the force of the adage, "a new broom sweeps clean."

SOIL AND CLIMATE.—This plant will grow and mature in any part of the temperate region where the soil is adapted to it. But it seems to do best between 38 and 43 degrees North. Below, it grows too rank, and the brush is coarse. Above, it does not mature and the seed is of no value.

The soil should be a deep, rich, sandy loam. It should be ploughed deep, manured highly, and reduced to a fine tilth and planted early. The roots, unlike those of the Indian corn, cluster together, in form somewhat like the distaff, and run directly downward. The plant, in its infancy, is very small and feeble; and seems for the first month, to struggle hard for life. It requires a longer season than Indian corn. Hence the importance of having and naturally warm, that it may be planted early and ripened before the frosts of autumn.

CULTIVATION.—It should be planted thicker than Indian corn. Let the rows be of sufficient width to allow a horse to pass between them, say three feet, and the hills in the row two feet apart, with an average of ten stalks in each hill. A better way is to use the planter, and leave a kernel every three inches. Planted in this manner, the labor of weeding is much less, and the quality of the brush better. In seeding a liberal allowance should be made for insects and vermin. They often lay claim to the whole, and are seldom satisfied with less than one-half.

It has been supposed necessary to manure in the hill, and that till very recently has been the universal practice. A better way has been found out. I would not manure the hill for any crop. However light the dressing, let it be spread broad-cast over the whole surface. If the proper pabulum of plants is in the soil, the roots will find and appropriate it. To thrust a shovel-full of manure underneath a hill of corn, and leave the ground about without manure, is much like stuffing a starved horse with oats on the morning of a hard day's journey, and leaving him to fast the rest of the day. Better feed him well for some days previous, and during the working day, let him have his ordinary feed. So of manuring, let it not be done solely for the crop, but partly for the land. The farmer who pursues the former course will always till a sterile soil, and himself be poor.

During the first six or eight weeks, constant care must be bestowed upon this crop. The earth should be frequently stirred, and all weeds carefully excluded. Not less than four times hoeing will answer, and much care should be used at the second or third hoeing to reduce the number of stalks within the limit mentioned above.

Harvesting.—This should be deferred until the seed is hard, if the season will allow. But if a frost come prematurely, and blight your prospects, the brush should be cut immediately. The common mode of gathering the brush is by tabling, as it is called. The stalks of two contiguous rows are broken down and made to fall diagonally across each other, so as to form a sort of table, on which the brush is spread to dry. Cutting and spreading the brush is suitable work for children. So long as the weather remains good, the brush should be permitted to remain, being occasionally turned. But upon the approach of a storm let it be housed. It is damaged by rain no less than cured hay.

The next step in the process is to bind the brush in bundles, averaging about fifteen pounds, and placing them on end, with the buts down, under cover, where the air can have free access to it. When thoroughly dried, the seed is scraped off and the brush is ready for use.

Another mode of gathering is to cut the stalks near the ground, and lay them longitudinally between the rows, disposing of the product of two rows in one furrow, and spreading the brush upon the stalks. When it is intended to plough and sow after harvest, this course must be pursued. In this case, the stalks may be buried with the plough. In the other, they are usually cut and burned upon the ground.

Profits.—Seven hundred pounds of brush is about an average yield per acre. One thousand pounds is not uncommon. Land that is in a suitable condition to produce seventy-five bushels of Indian corn, will, under ordinary circumstances, yield a thousand pounds of broom brush. Brush is now selling for ten cents per pound. It ranges from four to twelve cents per pound, averaging about six.

The seed is an important item in the product. It is not a certain crop, being liable to be spoiled by early frosts. The seed may be killed without materially injuring the brush. But when the season is favorable it is not unusual to get ten bushels of seed to every hundred pounds of brush. Thus the seed, in a good season, is fully equal in quantity to the crop of oats which the same ground would produce; and for most purposes of stock-feeding it is considered equally valuable. The whole product may be summed up thus:

700 lbs. brush at 6 cts.	$42 00
70 bushels seed at 42 cts.	29 40
	71 40
But 1000 lbs. at 10 cts.	100 00
And 100 bush. seed at 50 cts.	50 00
	$150 00

More than this has, in some instances, been realised.

It is generally believed that, in case the seed ripens, it is a better crop at 5 cts. per lb. for the brush, than Indian corn at 83 cts. per bush., which is about the average price in this region.

It is thought to exhaust the land less than most other crops. I know of fields that have been planted with broom-corn more than twenty seasons in succession without deterioration in the product. R. B. H.

AMHERST, MASS, March 20, 1856.

FOR THE PLOUGH, THE LOOM AND THE ANVIL.

FOREST TREES OF NICHOLS, TIOGA CO., N. Y., AND THEIR USE.

THE WHITE PINE CONTINUED.

THE price of pine boards down the Susquehanna river for a few years back has ranged from $9 to $14 per thousand—that is, for common cutting lumber or common boards, as some would term it,—the different sizes of pannel ranging from $18 to $40 per thousand. A considerable amount of square timber has been taken from this vicinity. I am not acquainted with this business, but the value of timber often varies much. Some years it is very high. Last year it was so low as to be a losing business. The timber is got out or hewed on four sides, and each stick is from forty to seventy feet long, and often over two feet at the butt end.

The age of the pine is variously estimated. It is quite difficult to count the rings of a large pine. As far as ascertained, the oldest pines in this vicinity range from 250 to 300 years. It is said that a pine was cut down some years ago in the town of Southport, Chemung Co., N.Y., that was over 700 years old. In the year 1841, I cut down a few pines that were of the second growth, or had grown since the land was partly cleared, that were from twelve to fifteen inches in diameter and from twenty-eight to thirty years old, and about thirty-five feet high,—being low and full of limbs like an apple tree. A pine growing in thick wood, that is twelve inches in diameter, is often sixty years old and fifty feet high. A large pine has always an old appearance, being nearly covered with two or three varieties of moss from the ground upwards for several feet, and even on the limbs is found a long, shaggy, gray moss. The wind blowing through pine boughs makes a sighing or humming noise, not unlike a swarm of bees flying over.

A large portion of this vicinity is covered with pine stumps; but a great proportion of them have been pulled within twelve years, and many are now pulled yearly. With Hall's cylinder machine, I have helped pull one hundred pine stumps in a day, the stumps being of a small size and on a diluvial formation, while on hill land, with a good lot of stumps, we pulled from forty-five to fifty-five per day, and on low creek flats, with large stumps, only from fifteen to twenty per day. The price of this machine is about $400. The Hook and Lever stump-machine is getting much in use in this vicinity, and is thought by some to be equal to the Hall machine, and to be more easily worked. The cost of this machine is from $120 to $200, according to the amount of iron used.

Generally all pine stumps with good roots are used for fence in this vicinity. I have about a mile and a half of stump fence, and it wants but little attention from one year to another, and will last an age or more. The pin stumps are hard to root out. Sixty years do not effect much in this way.

NICHOLS, April 14, 1856. ROBERT HOWELL.

INFLUENZA OF HORSES.

BY CAPTAIN RALSTON.

THE perusal of "Thoughts upon the Prevailing Disease among Horses," in the March number of the American Veterinary Journal, together with a preceding article, upon "Influenza," in the number for January, has induced these observations. The writer feels constrained, as a Veterinarian, to commence by remarking that it may be deemed his herein views had better been submitted to the professional journal which has called them forth. But with every respect for any journal devoted to the veterinary art, and this in no diminished degree for one which he favorably estimates, as a pioneer-effort towards highly desiderated objects, in relation to eventual veterinary progress in this country, still he has preferred the privilege of the pages of the "P. L. and A.," inasmuch that professional readers as yet are scant, and it is therefore of advantage to promote and extend discussion, through the more generally circulated and read (and cousin-german) pages of an agricultural serial, in manner whereby it is hoped that veterinary subjects may come more and more under the recognition of those whom it is most to be desired should be aroused into intelligent consideration of their importance. It may not be amiss to furthermore add,—and this is ventured under a truly earnest wish that the journal, which has been first on the field of American veterinary culture, should strike its roots deep, grow, and successfully flourish—that over-much of school science, at the outset, may not prove favorable, on so new and untilled ground! Still the higher scientific tone is to be respected; and, if the editors of the American Veterinary Journal always shall draw for information or seek exponents of the important art which they represent, through such sources as those of "The Veterinarian," (British,) and the writings of the late William Percival and of his father, (formerly at the head of the veterinary staff of the Royal Artillery and Ordnance Corps,) there is no veterinarian but will indorse the tenets and the teachings.

In 1852, the writer sought to attract some notice to the influenza of horses, through the medium of the "*Spirit of the Times*," and what is here submitted will be a somewhat modified reproduction of the same views. In the A. V. Journal, "Influenza," it is said, passes in stable language under the familiar term of *horse ail*, *pink-eye*, *etc.*

The writer demurs as to *pink-eye;* for he opines that thereby is meant a peculiar chronic-opthalmic affection of the conjunctival tissues (or membraneous linings of the eye-lids and white of the eye,) the consequence of standing in darksome and ill-ventilated stables, and where the disengagement of amoniacal gases assail the eyes and act as a specific local poison to those organs, resulting in corneal opacity, cataract, &c. Such conditions of badly-arranged and ill-kept stables injuriously affect all the vital organs of animals subjected thereto, and particularly pre-dispose to pneumonic affections, and not unseldom beget farcy or glanders.

But in connection with influenza, itself, he also demurs as to those "typhus" and "typhoid" complicities introduced, in manner seen in the "Thoughts upon the Prevailing Disease among Horses." Far be it that any new light from science, or investigation, should be excluded from respectful attention or inquiry; but we may define and refine too far, and thus perplex. In the old term of "Influenza Maligna" the same idea may be said to be predicated; and the writer proposes to waive those new aspects, and treat of Influenza simplex and Influenza maligna, their causes, symptoms, and also their more ready treatment in horse-owners' own hands.

The first alluded to form of this affection is variously named cattarrhal fever, epidemic cattarrh, influenza, and (in the racing stables) distemper. Young horses are generally most liable to and prove least able to contend with or surmount its effects. It ordinarily commences with a rigor, or slight shivering fit. This premonitory, or incipient indication, is very rarely observed or attended to. If, however, it should be noticed at the outset, it may be of much importance; since recourse to prompt and judicious treatment might then arrest the further progress of the attack. We will consider this commencing or initiatory stage of the disorder.

In inflammatory affections, whether of the lungs, bowels, kidneys, or other organs; or in the early or acute stages of local injuries—as wounds, strains, &c.—the resort by uninformed farriers and stable-helpers is almost invariably to stimulant applications, internal or external, as the case may be. Now, at the proper time and place, stimulant and discutient remedies are valuable therapheutical agents; but to administer them in the acute stages of inflammation of the lungs, bowels, &c., or to apply blistering unguents, or imitative oils, or tinctures, in cases of recent injuries or strains, is treatment as pernicious as it is ignorant. It is like pouring alcohol or gunpowder on flame, to extinguish it. *After* inflammatory action is abated, and when the general tone of organs, or local action of parts, has been left in a depressed or unreinvigorate state, then the cordial or the tonic, the blister or the caustic, may become most estimable curative adjurants. Otherwise, the so constant and irreflective recourse to stimulants, at the wrong time and place, has done and does incalculable mischief, in *quasi*, veterinary practice. This is a gross medical and surgical error, which has killed animals by thousands annually, and which converts casual and curable injuries into incurable lameness and permanent blemishes. But ignorant assumption meets with perilous trust and confidence where human health and life are concerned; and if so in relation to ourselves, can better be expected for our domestic animals! Quacks and nostrum-venders flourish; for the want of sufficient knowledge on the part of those ailing—and in earnest and anxious quest of relief, leads to reliance on the sordid vaunts of unscrupulous ignorance. In other things than those of health, individuals will properly require to have some avouchment—to understand the grounds and have reasonable proof of capacity or trust-worthiness—before rendering belief or reliance; but in what is of so paramount moment as competent medical or surgical treatment when sick, the reverse of this is the too frequent rule. It is not "*damnant*," but "*credant*, quod non intelligunt;" for just in proportion to his outrageous averments, and the impossible qualities imputed to his nostrums, is often the blind-fold dependence placed in the *empiric*. As regards animals—let us say horses—*they* cannot, in words express the causes or seat of their ails, or complain how maltreatment may be injuring or torturing them. Yet, while the verbal expression is denied, they have a mute, but most eloquent language of their own, and one altogether undeceptive, if the right observation, tact and skill be in attendance—qualifications each and all essential in the veterinary surgeon. The maladies of animal life are not so complicated as those of human life; but they run their course more rapidly and determinately. Hence, with the former the art of the practitioner—the *mendendi scientia*—is required to be more promptly and shrewdly unerring; else, irrespective of what ought to be done being left not done, the opportunity to do anything effectively may altogether be lost. This, however, all matters but little with your genuine "horse doctors;" for with the the professors of that school of practice the *Quid dem? Quid non dem?*" is a modest self-interrogatory, having no place. With them no adequate standard of general education, on which has been based one more especially professional, so as to guarantee some scientific attainments in anatomy, physiology, pathology, and the art of healing, is in any manner or degree needful for recognizing the symptoms, seat, causes, and remedial treatment of the diseases of animals!

The foregoing has, however, traveled somewhat out of the record concerning stimulants. The object, however, was to decry the abuse of these before adventuring on a recommendation of their use, in one of the rare exceptional cases. If an influenzal attack be recognized in its premonitory, or very early stage—that is shortly from, or a few hours after the horse has been certainly well, and when the drooping attitude, languid, yet quickened pulse, and general appearance of a "cold," but without cough or muscous discharge; in fact when presenting those symptoms which betoken a disturbed or oppressed constitutional, or febrile crisis, without indications of organic inflammation or lesion; then, and just at this time, if two or it may be three quarts of blood be drawn from one of the jugulars, to relieve the heart and lungs, and thereupon proper stimuli be administered, a sanitary reaction may be superinduced, and the revulsive nervo-vascular disturbance, which developes in the mucous membranes, and prostrates the physical energies so rapidly, so as greatly to complicate the after treatment, may be arrested, or materially controlled. The best and safest of the diffusible stimuli for use, in these cases, is nitrous ether, or sweet spirits of nitre. Say, that 2 oz. of nitrous ether be taken, and 2 drachms of infusion of camomile; add these to ½ a pint of milk-warm water, and let this dose be given twice a-day. A bottle is often used for giving fluid medicine; but it is inappropriate and unsafe. An ox-horn makes a serviceable instrument. Sever an inch or two off the small end, and plug it; and then cut the wide end slantingly, so as to form a sloped open end. Put the drink into the horn, and an assistant having quietly opened the horse's mouth, and gently grasped his tongue so as thereby to draw it a little out on one side,—at the same time, with the other hand, elevating his head and muzzle a little let the open end be inserted, on the other side, and over the back part of the tongue, and the contents be softly poured down, gulp by gulp. Every action and movement should be made with the greatest gentleness, not only because the horse's throat may be sore, and swallowing painful, (besides the natural distaste for the medicine and the constraint,) but because less resistance or struggle will ensue, and there will be no risk of injuring the mouth or tongue. At all times, the more unwilling or violent horses are, the greater the occasion for gentleness, otherwise an operator will be more baffled, and the draught be got over with so much irritation as to do more harm than good. In all operations and restraints, as in all lessons or instructions with horses, patience and gentle handling must ever be a *sine qua non* to succeeding well; and the shyer or more intractable any animal may be found, the greater the occasion for his being soothed, and given time, and gone about gently. High couraged and valuable horses—often those the most so—are most of all apt to be rendered sulky or stubborn, and every way of inferior value, by hasty treatment and unfair curbing, constraint, or punishment. Animals cannot, by language, be made to know or understand what it is sought they should obey or do; and as training, &c., to them are acts of a character at once disagreeable and unaccountable, so favorable or kindly submission can only be induced or expected from quiet and gentle, but firm proceedings, and everything that is alarming, or has a coërcive aspect, ought to be studiously avoided or concealed.

As relates to such cases of influenza as has been referred to, besides the nitrous ether draught, ¾ of a pint of sound ale, sweetened with two tea-spoonfuls of molasses, and having 2 drachms of the best ground ginger stirred in, may be mixed with a pint of milk warm water, and given alternately with the other. The patient should be placed in a moderately warm, well-ventilated loose box if possible; in any case well clothed, and where there are no currents of cold air. He should be bedded up to his hocks in short dry straw; and leg-bandages of flannel may be usefully employed. The food should be small potions of sweet hay; barley or malt mashes; a handful or two of oats; and for drink thin water gruel. If in two, or as may almost be said, one day, the attack does not seem to be arrested, and if mucous discharge from the nasal membranes supervene, then the complaint is established, and will run its course.

In the latter case, the treatment is not very different; but the progress of the disease has now to be carefully watched. The mucous, serous, and sero-mucous tissues seem to be especially attacked. Their nervous tone seems to be altogether deranged, and their secretions correspondingly. In fact, all the membranous system seems to sympathize, accompanied by flying neuralgic twinges. The worst and most difficult symptom, however, is the extraordinary weakness and prostration of all the energies which rapidly attend the mucous discharge. This and the indisposition to food, together with the pulse running high and the breathing oppressed, complicates the case; for it is unsafe to abstract blood, and still the case must not be lost from congestion of the lungs and heart. If food be entirely rejected, pretty thick, smooth oat-meal gruel, sweetened with a spoonful or two of molasses, and with 1 drachm of nitre dissolved in the ½ gallon should be horned over 4 or 5 times a day. Enemas of the same kind should be thrown up. Bran may be stirred in the water, and poured off clear, and in this 1 drachm of nitre and a table spoonful of honey may be dissolved to the pailful. If the submaxillary glands are tumefied and painful, some blistering linament should be rubbed in between the jaws and along the course of the throat. But the practitioner's or owner's best treatment is limited chiefly to moderate warmth, pure air, a well bedded-up loose box, offering small quantities of tempting food, (or if need be horning over gruel and exhibiting enemas,) and giving weak nitro bran-water. If the patient begins to breathe less oppressed; his pulse fuller and not so quick; the membranes lining the nose more natural in color; in a word, if the symptoms altogether indicate decreasing febrile action, everything is to be hoped. The leading object is thereupon to support the strength—by means of gruel, and small malt mashes frequently offered. An oxymel may be beneficially used twice a day in ¼ of a pint of honey, mix a small spoonful of brandy, and the same of vinegar; stir into it a table-spoonful of linseed-meal and ½ of a pint of sound ale; and incorporate the whole in two pints of boiling water. Horn over one-half for each draught, when cold.

These remarks having run a sufficient length for the present month, the writer defers his observations on Influenza Maligna until the next month. It may not be amiss to here observe that the present suggested treatment is intended to be of a scope adapted to cases in any horse-owner's own hands, and when these are disposed, in a lesser degree, to complications and adverse results. In any such latter or more serious cases, the aid of professional advice is indispensable; and bleeding, counter irritants or blisters, rowels or setons and such internal remedies as tatarged antimony, digitatis, hellebore, calomel, opium, croton oil, etc., may come to be demanded, according to symptoms, and the patients condition. J. C. R.

Grad. Roy. Vet. Coll., Memb. Roy. Coll. V. S. &c.

[The above was designed for our last issue, but was received too late. The subject will be further discussed in our next number.—Ed. P. L. & A.]

COW RELIEVED BY SURGERY.

The following case of surgery is reported in the *Ploughman*. *The operation* was performed by Dr. Thayer of West Newton, Mass., upon a *favorite* cow of Mr. Geo. E. Allen. The case was stoppage, caused by the generation of gas in the stomach from eating too many rotten apples. He says:

"Finding all my efforts to remove the difficulty, unavailing, and she growing worse rapidly, I called in the doctor above mentioned, who very quickly decided that nothing but tapping would save her, and with my consent he made an incision directly into the Rumen, or first stomach, just in front of the hip upon the left side; and introducing a small tube, such an escape of *gas* took place as would astonish even our *modern politicians*. But the result was all we could desire, the swelling went down at once, and the cow was worth forty dollars more than before the operation. Those who witnessed the case, and some were *old farmers*, pronounced the operation entirely new to them."

AGRICULTURAL CROPS.

PROFITS OF FARMING.

A recent number of the journal of the N. Y. State Society mentions the following crops raised in different parts of this State. How can it be that farmers are content with less than half a possible crop and one-tenth the possible profits?

Mr. R. R. Hart, of Oneida, raised 70 bushels of shelled corn to the acre. Mr. Wm. Johnson, near Geneva, raised 38,671 lbs. of shelled corn on nine acres, equal to $76\frac{41}{56}$ bushels per acre.

Twenty-two cows on Mr. J. S. Hilbert's farm, Chemung Co., produced 4116 lbs. of butter. Included were two three-year old heifers. This butter sold at 27 to 37 cts. per lb. The average yield per cow is 187 lbs. each, or counting them as 20 cows, it would give 205 lbs. each.

In Tioga county the yield of rye is about 20 bushels per acre, some fields producing 28 bushels. The average yield of barley is 25 bushels per acre

That of Indian corn, 28 bushels per acre, while some fields produced 60 bushels. Buckwheat produced 15 bushels per acre. Oats average 35 bushels, some land producing 60 bushels. Hay, average, 1½ tons per acre, and some fields produced 2½ tons per acre. Potatoes about 50 bushels per acre.

INDUSTRIAL STATISTICS.

Bridgewater, Mass.—Population in 1850, 2700; in 1855, 3363; increase in five years, 575.

Four Rolling and Nail Mills; 1000 tons iron manufactured and not made into nails, valued at $80,000; 52 nail machines, 62,500 casks nails manufactured, valued at $250,000; capital, $77,000, 207 men employed. Two Forges, 70 tons manufactured, value of bar iron, etc., $10,500; capital, $7000, 20 employed. One furnace, 600 tons casting, value, $40,000; capital, $18,000, 30 employed.

Two paper manufactories; 270 tons stock used; 210 tons paper manufactured, valued at $30,000; capital, $18,000, 20 employed.

Two establishments for manufacture of coaches, wagons, etc., value of articles manufactured, $5,800; $2000, 7 employed.

One soap manufactory, 25,120 gallons manufactured, valued at $2,540; $1,500 capital, 4 employed.

One tin manufactory, value tin ware $500; 2 employed.

One cotton establishment, value of manufactures, $14,000, $30,000 capital, 40 employed.

600 pairs boots and 166,000 pairs shoes manufactured, valued at $125,700; 55 males and 35 females employed.

3,000,000 bricks manufactured, valued at $12,000; 30 employed.

63,600 bushels charcoal, valued at $4000; 20 employed.

90,000 ft. lumber prepared for market, valued at $7,600, 30 employed.

2217 cords firewood, valued at $6,651, 30 employed.

259 horses, valued at $16,472; 151 oxen over 3 years old, and 18 steers under 3, valued $7,557; 44 milch cows, and 51 heifers, valued at $14,288.

25,836 lbs. butter valued at $6,459; 6679 lbs. cheese, $834; 130 lbs. honey, $26.

283 acres Indian corn, 20 bush. per acre, valued at $8,136.

1½ acres of wheat, 16 bush. per acre, $48.

57 acres of rye, 11 bush. per acre, $857.

3½ acres of barley, 24 bush. per acre, $80.

129 acres oats, 23 bush. per acre, $1,809.

1 acre onions, 380 bush. $190.

4½ acres turnips, 325 bush. per acre, $450.

1½ acres carrots, 416 bush. per acre, $62.

¾ acre beets, $42.

1540 acres English mowing, 1128 tons, $20,304. 414 tons swale hay, $4,140.

2299 apple trees, $902. 1180 pear trees, $128.

14 acres cranberries, $520.

1 shingle and box board manufactory, capital $3000; men employed, 12.

Value of machines manufactured, $4000, men employed, 5.—*Ploughman.*

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THE RESPONSIBILITY OF WOMEN FOR THE HEALTH OF THEIR OFFSPRING.

MR. EDITOR:—A medical writer has remarked that "Perfect health in civilized society is unknown; it exists only as an ideality." This startling truth, which any one of observation cannot dispute, leads to the inquiry, Who is in fault? A full and impartial answer would require us to examine the duties of both sexes. At present, however, we shall only consider the manner in which woman discharges her high responsibilities as *mother* of the race.

From reports published by Miss Beecher and others, we learn that our towns do not average *one healthy woman.* Nevertheless, he who teaches that the sex are in fault for their bodily infirmities, is often regarded as blaspheming; for has not Providence seen fit to afflict them!! Thus by making Supreme Power the scape-goat, they *piously* relieve themselves *of all* responsibility for their own sufferings and those which they inflict *upon the race.*

When we consider that about every third woman *has a diseased spine*, that at least every fifth one is scrofulous, consumptive, or possessed of some other disease transmissable to her offspring; and making no estimate of general debility and various weaknesses, that not one in a hundred can boast of having no deformed bones, we are led to ask, what kind of a Providence is that who thus delights in disfiguring his noblest work! Providence establishes laws—those who violate them suffer the penalty. If we look from effects to their causes, we can trace to the habits and customs of women many of the evils which have vitiated the human family. It cannot be expected that infirm parents, groaning under a load of disease, will give to the world an iron race. It should not be expected that women who shut themselves in from the inspiring air and sunlight of heaven, confining their labors entirely to the house or living in indolent luxury, will "stamp their race with signatures of majestic grace," or transmit to the world offspring possessed of sound mental and physical organizations. As reasonably may we look for pure sparkling waters to flow from a malignant morass.

There are those of the sex that have observed and reflected much, who know and acknowledge that women are in fault, criminally so, for scores of the complaints from which the race suffer. With such lies the weighty duty of commencing a reform, which shall restore to the human constitution *some* of its pristine *tone.* At the present time few of our girls reach the age of twenty in a sound condition. Large numbers marry and become mothers,—give to the world a suffering offspring, and themselves drag out lives of pain. So it will ever be until education and fashions accord better with the dictates of nature, until parents observe the laws of health themselves and require them to be observed in the treatment of their children.

Take a fair girl of seventeen or eighteen, who has been so fortunate as to inherit no disease and to pass through the periods of infancy and school with no other misfortune than to come out *rather delicate*, teach her by example to submit to fashions, however opposed to the dictates of sound sense and the demands of sound health they may be, encircle her waist with whalebones and steel; load her hips with skirts, corded, quilted, hooped and starched, tied tensely around the person to keep them in position; have her adopt the sedentary habits of thousands of our women, and then in a few years look at the woman you have *re-created* from the noble girl.

Her whole body is in an abnormal state. Weakness and disease prey upon a form, which, had a reasonable course been pursued, would have been bounding with health. Thus it is that Providence sends afflictions!! Were they not invited?

If women would rejoice in the fulness of life, if they would give to the world an offspring beautiful and noble, let them make the laws of health the great study of life, and the instruction of their children therein one of their great duties.

Let them throw aside whalebones and steel, and make easy but elegant costumes. Let them untie the strings which are doing a work as fatal as the hangman's cord. Let every garment be suspended from the shoulders. Let every limb have scope for action. Let them spend several hours per diem in the invigorating air which God has adapted for their lungs.

Teachers are grossly in fault for not bringing these things forcibly before their pupils, both in practice and in theory. The long processions formed to *take exercise* in measured pace, for half an hour in the twenty-four, leave no vivid impression upon the pupil except a remembrance of the stupidity of the performance. Let scholars *feel* the pleasure of living at least three hours per diem in the open air, and they will readily comprehend when instructed that it is an agreeable duty to do so.

The health of morals and intellect sympathizes with that of the body. If the latter becomes prostrate the former may become enfeebled. It would therefore seem appropriate for our eloquent divines to inculcate, occasionally, lessons upon the important subject of health and the responsibilities of every intelligent being. The effect would doubtless be as beneficial to the human family as homilies upon natural depravity or original sin.

June Isle.

NOTE BY THE EDITOR.—The above topic is one of immense importance, which ought not to be considered out of place in any journal, moral, scientific, or political, for sound minds can only be looked for in sound bodies, and permanent defects in one lead to the ruin of all our social and political institutions. We were not aware that abnormal organizations were so common as they are represented by our correspondent, but we are quite certain that reform in this matter is imperatively demanded, and that we have yet to endure a large part of the penalty for our sin in these matters. From this there is no escape. There is no pardoning power. The law is inexorable. We commend this matter to the serious attention of our readers.

We only add that natural law has herein provided against the permanance of all assumed superiority in the wealthy classes. They are obliged to resort to external appendages, to costly dresses and extravagant modes of living and peculiar habits of life, in order to distinguish themselves from their neighbors. These very habits ruin both mind and body in about two generations, and not only reduce them to the ordinary level in personal attractiveness, &c., but to objects of pity, demanding the sympathies even of the poor.

A "millionaire" once said to us, "I would give you every dollar I am worth for your legs." So the wheel turns. Let not those who are getting up exhibit so much folly as their predecessors. Yet we are sorry to say we think they furnish too much evidence that they are becoming the silliest of all fools who have preceded them.

AN AGRICULTURAL BUREAU.

WASHINGTON, April 4, 1856.

THE following very interesting letter, addressed to the Agricultural Committee in the House of Representatives, exhibits the scope, objects and operations of a bureau of the Government, yet in its infancy, but which is fast becoming one of the most practically useful and important.

UNITED STATES PATENT OFFICE, March 31, 1856.

Agreeably to request, herewith I furnish you with some of the principal reasons why Congress should increase the agricultural appropriations hereafter to be expended by this office with some of the benefits to the country which have already resulted from the appropriations made years past.

One of the prime objects of these appropriations has been the introduction of new and useful vegetable products hitherto unknown in the United States, and the increase and dissemination of those of superior qualities which had already been cultivated or otherwise known. Measures have been taken to procure from every quarter of the globe, such seeds, plants, roots and cuttings as would be likely to succeed in any part of the country, and placing them in the hands of persons who were the most likely to test their adaptation to our climate and soil. As a matter of course, many of the experiments thus made unavoidably proved abortive; but in numerous cases, they were attended with the most signal success, and a single product, in the opinion of competent judges, has added millions to our resources. For instance, a variety of wheat known as the "Mediterranean," which was brought to this country a few years ago, has proved highly productive, hardy and maturing several days earlier than other varieties, thereby escaping the ravages of insects and rust, besides being sooner ready for market.

Within the last year no less than seventeen varities of wheat have been introduced from distant parts of the globe, and distributed in various sections of the Union, most of which promise to be attended with good success.

The "Indian mixed" or "Dourah corn," of African origin, has also been introduced, and it constitutes a valuable crop in the South.

The "Japan pea," unsurpassed by all the others in its yield, believed to be of Eastern origin has been cultivated in various parts of the country with remarkable results.

The "Chinese yam," originally from China, but more recently from France, which promises to serve as an excellent substitute both for the sweet and common potato, has been sufficiently tested to prove its value in the Southern as well as in the Middle States.

The "chufa" or "earth a mond," a small tuberous esculent, from the south of Spain, which has naturalized itself to our soil and climate, has proved prolific in its yield when grown in light sandy soils, as well as those which are rich, and bids fair to become a valuable forage crop for cattle and swine.

At least thirty varieties of turnip seed, including the best cultivated in England, as well as on the continent in Europe, have been imported and disseminated in every State and Territory of the Union. The benefits are already apparent. Similar experiments are now being instituted with all the leading varieties of grasses, cabbages and peas of Europe, the results of which will soon be made known.

Among the forage crops it may be mentioned that the Chinese sugar cane (So gho Suche), a new gramineous plant, of Chinese origin, but more recently from France, has been introduced and has proved itself well adapted to the geographical range of Indian corn. The amount of fodder which it will produce to the acre is estimated to be twenty-five tons; the stalks of which are filled with a rich saccharine juice, the whole plant being devoured with avidity by cattle, horses and swine. It is of easy cultivation, being similar to that of maize or broom corn; and if the seeds are sown early in May in the Middle States, two crops of fodder can be raised from the same roots in the season—one about the first of August, and the other in October.

Another valuable forage crop, the "German millet" (*Mohn de Hongrie*) has been introduced from France, which is very productive, of quick growth, resists drought, and flourishes well in dry soils.

Among the cuttings of fruits trees and vines which have been introduced may be mentioned the "Prune d'Ageu," the "Prune Sainte Catharine," and the "Vigne Corinth." The two former have been grafted on the common plum in all the States north of Pennsylvania, and on the mountainous districts of that State, Maryland and Virginia. From the success which has attended this experiment, there is every reason to hope that there will soon be produced sufficient dried prunes in those regions to supply the wants of the whole Union. Among the seeds of indigenous growth, which have been selected and distributed, in reference to their superior qualities, as well as to their probable adaptedness to certain parallels and localities, and which have proved highly productive, there may be noted several varieties of Indian corn.

Among these are the "Improved King Philip," or brown corn obtained from an island in a lake in New-Hampshire, which was extensively distributed in all the States north of New-Jersey, and the mountainous districts of Pennsylvania, Maryland and Virginia. The result has been that it matured in less than ninety days from the time of planting, (about the middle of June,) and yielded, in one instance 134 bushels of shelled corn to the acre. Another superior variety, from New-Mexico, the "New-Mexico White Flint," has been distributed, which appears to be adapted to the entire corn region south of Massachusetts. For ordinary use, either green or dry, its quality of excellence is unsurpassed.

Among the products which it has been proposed to introduce from abroad, with a view of making special experiments, to be conducted by agricultural societies or by individuals in the several States and Territories of the Union, may be named considerable quantities of all the best varities of wheat and of other cereals of the globe. In addition to these there might be imported the seeds, roots or cuttings of all the principal economical plants and trees known, and experimented upon in a similar manner.

In connection with the subject I would suggest the expediency of Congress making the annual appropriations for the purpose of agriculture sufficiently early in the season to order most of the seeds to be grown the approaching season, so that they may be received in time for distribution by the first of January or before. For it has been found by experience that when large orders for seeds have been made after the month of April or May, it was impracticable for the seedsman to furnish an adequate supply without procuring them from various sources and this too often requiring several months. Hence most of the seeds would arrive too late for the southern and middle sections of the Union; or if they were attempted to be kept over till the next fall they would be either devoured by vermin or insects or rendered worthless by age.

Another feature connected with these appropriations which appears to need simplification or reform, is some more feasible and equitable plan of disposing of these seeds than had been adopted heretofore.

I would therefore, suggest that, instead of distributing of them promiscuously, through members of Congress, societies or individuals, who may apply directly for them at the Patent Office, suitable arrangements be made by said members for them to be sent, in bundles not exceeding four pounds weight, franked by the Commissioner of Patents, to the State, Territorial and county agricultural societies, or to the Secretaries of States or Territories or County Clerks, where there are no such societies, to be distributed by mail or otherwise, to proper individuals residing in each State, Territory or county, for trial or special experiment, with a request that each recipient shall report the result for the use of the Patent Office.

To insure the free and speedy transport of each small packet of cuttings or seeds, an appropriate stamp might be placed upon it, bearing the imprint of the name of the member of Congress or Territorial delegate in whose district or territory any such society may be located, or in which any Secretary of State or Territory, or County Clerk may reside.

The apportionment of the packets sent to the State *societies might bear* a stamp containing the name of the Senators of each *of the States respectively.* This change can only be effected by an amendment in the postal law, and necessarily would come before the Committee on Post Offices.

Very respectfully, your obedient servant,

D. J. Brown.

Hon. David P. Holloway, Chairman of the Committee on Agriculture, House Representatives, United States.

BUTTER MAKING.

Editor Ohio Farmer.—*Dear Sir:*—In the 43d number of the current volume of the *Ohio Farmer*, I observe an inquiry from Mr. Alden, on the subject of making butter from sweet cream. He affirms that "Agricultural books and journals tell us that butter cannot be made from sweet cream." And then declares that the life-long practice of his mother contradicts the teaching of the "books" on this subject. There is, perhaps no branch of domestic economy the theory of which is so little understood by those who practice it as the art of *butter making.* The first truth to be learned on this subject is, that butter is not *made* by churning! All the butter that can, by any process, be procured from cream or milk, exists in the milk when drawn from the cow, and the business of the dairy-man is to ascertain how it can be most perfectly separated from the other proximate elements of the milk with the least labor, and carry with it the fewest impurities, or substances other than butter. In newly-drawn milk the butter exists in the form of exceedingly minute globules, each wrapped in a very delicate membrane of cheesy matter (casein) and floating promiscuously through the fluid. If the milk be suffered to stand at rest for a few hours, butter being lighter than milk, the globules find their place at the surface according to the laws of gravitation. If the new milk be heated to 180° and suffered to cool, the globules, swelled by the heating, their envelopes thickened by accumulating cheesy matter from the milk, will rise to the surface more rapidly and form a heavier and thicker coat of cream which, on being churned will yield more pounds not indeed of butter, but of a compound of butter, casein and sugar of milk, which has a very rich flavor when fresh, but soon become rancid and unfit for the table. But to the question of Mr. Alden. Churning is but the breaking of these globules, that the particles of butter may cohere together and form a mass more or less solid. This at first would seem to be a mere mechanical action, but connected with it, or least accompanying it, are chemical changes, whose invariable presence leads us to infer that they constitute an essential part of the process. These are, first, an elevation of temperature, frequently amounting to 10°, if the "butter comes" rapidly. And, second, the formation of lactic acid; for if milk be churned as soon as drawn from the cow, and butter be separated, the butter-milk will be found to contain acid, though it may not taste very sour. Whether this lactic acid is a cause or an effect of the separation of the butter, has not been satisfactorily settled, but that it is always present after butter has been churned, is a well ascertained fact, and this fact, all scientific books on the dairy assert. Johnson, Ballantyne, Ayton and Traill all teach that "butter made from sweet cream is less in quantity, and require more labor to produce it, and is therefore unprofitable." In this they admit that it may be thus made. But that sugar of milk is converted into a lactic acid, when butter is churned, is a well ascertained fact.—*Ohio Farmer.*

A NEW STONE FOR STREET PAVING.

A GOOD article for pavement is one of the most pressing demands now made upon the government of this and other commercial cities. The safety of persons and animals, and economy, in a matter involving so much expense, and where so much is at hazard which money cannot buy, cannot fail to engage the attention of all conversant with such matters. Various inventions have been made and tried, with various success. New projects are constantly started, having more or less claim to consideration. Among other claimants, we invite attention to a new stone, not hitherto used for this purpose, found in large quantities, we are informed, in Dutchess County. Our attention has been called to it by Messrs. Bell & McEntee, of Kingston, proprietors of the ledge, we believe. It is a peculiar style of granite, nearly white from the abundance of its quartz, in a mountain, forming one of the ranges of the Catskills, and is known there, as the Esopus stone. It is used extensively for mill stones, and while it is difficult to reduce it to powder it is still more difficult and apparently impossible to reduce it to a polish. Hence it promises, to be both durable and safe for horses.

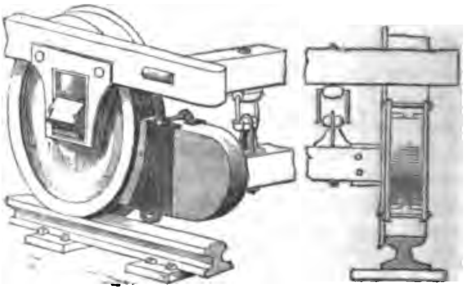
These stones are taken frequently on high ascents, and the roads leading to them are in many places bedded with this stone; forming inclined plains of several rods each, in length. In drawing heavy loads over these beds it has been a subject of remark among the quarrymen that a "horse would pull his shoes off sooner than slip." Heavy loads have been daily drawn over these nature-made pavements, and man has had only to observe, to determine what should be done in a city so sadly situated in regard to its streets as New-York.

BARREL MAKING MACHINE.

We had an opportunity, a few days since, of witnessing the operation of an ingenious machine owned by the Livermore Manufacturing Company, for making barrels and tight casks. The machine is in operation at Alcott's Mills, Broadway, Cambridgeport, Mass., and is worth a visit from those interested in such matters. The strips of wood which are to be made into staves having been first heated, are passed through a machine containing numerous rollers, under which they receive the requisite *bend*, both lengthwise and traversely. They are then put into another machine, where by an ingenious movement they are cut at both ends, grooved, and planed at the sides, so that they are turned out perfect staves of uniform length and width, all being precisely of the same shape, in all respects. Sixteen of these make a barrel. There is a separate machine for cutting out the round heads of the barrels. The machine which bends the staves turns out enough for 600 barrels in a day. Four of the other machines, in operation at the same time keep pace with it in completing them. The work is expeditiously and easily done. It is claimed that the barrels thus made are fifteen per cent. stronger than those made by hand; and the staves being precisely *uniform*, the business of putting them together becomes very simple. The stock is seasoned before passing through the machine, and the barrels are thus made perfectly tight and not liable to shrinkage. The apparatus deserves the attention of dealers in flour and provisions. The number of barrels used in this country is immense—it is stated that not less than fifty million in a year are required for the ordinary demands of business.

Under these circumstances, a machine which abridges the labor of manufacture and improves the quality of the article, becomes especially valuable. —*Exchange*.

PAIGE'S ADJUSTABLE CAR BREAK BLOCKS.



The frequent pressure of the break upon the periphery of the wheel necessarily produces a rapid waste of material, whether it be iron, or wood, and leather. Each of those substances have been used, and perhaps each has some advantage over the others. But the cheapest material, of course, is wood, and if the block can be so arranged as to allow of frequent change at a trifling cost, then the great object in view is, so far, already realized. But if any plan can be devised by which a partial adjustment of the same material can be secured, the material itself being also cheap, then there would seem to be no further room for improvement, for, as already stated, wear is inevitable. So far as we can percieve, this has been done by the inventor named at our caption. A wooden block is brought into contact with the surface of the wheel, and is so arranged, in a socket, that it can be adjusted, by the rise of screws, or to any desired position. As it is worn away by friction, the block is placed in the socket nearer to the wheel, until its material is almost entirely destroyed.

Two stout plates of iron confine a hard plank of suitable width, which may be adjusted by bolts, at any desired distance from the wheel. All that is necessary to effect this change is to loosen the bolts, driving the block forward in the socket and then re-tighten it by turning the screws or bolts.

This block has been in use on the Hudson River Railroad about six months, and but three out of the eight blocks have required any change, and these three required attention only because the spring which forces the block from the wheel was too weak. Other railroads have the same block in use as an experiment, and with all it is highly successful. The whole arrangement is readily seen by a glance at the annexed engraving.

The beams now in use may be employed in attaching these blocks with very little expense, no change being necessary except the fitting of the ends to the socket. The agent for this patent is C. Dinsmore, of the "Railroad Guide."

English Patents.

An improved construction of Gun-lock. By John Coney, of Newhall, Hill, Birmingham.—The object of this invention is to simplify the construction of gun and pistol locks, and also, at the same time, to provide a simple means for preventing the premature discharge of fire-arms. In carrying out his invention the patentee connects the seer with the hammer, so that they shall move together under the action of the main spring. The seer is provided with retaining notches for half-cock and whole-cock, which notches catch against the V-edge of a bearing pin projecting from the inner face of the lock-plate, and thereby hold the hammer at the required position. The trigger is so arranged with respect to the seer (upon which it acts to discharge the piece,) that when the lock is at half-cock, the trigger will be out of reach of the seer, and therefore, if accidentally pulled, will not act upon the lock. This advantage is obtained by reason of the seer, through its direct connection with the hammer, being caused to travel with the hammer.

Improvements in Marine Steam-Engines. By James Biden, of Gosport, Hampshire.—This invention consists in feeding the boilers of marine steam-engines with fresh water, obtained by the condensation of steam after having been employed in the steam-cylinders. The manner of carrying this object into effect is as follows:—Pipes leading from the cylinders are passed into the water outside of the ship at one side thereof, and carried round from the stern to the other side of the ship. They then enter and open into a reservoir in the hold or other convenient part of the ship. This reservoir is formed with two compartments, one above the other, and the pipes communicate with the lower one thereof. The upper compartment is kept filled with fresh water, and it communicates with the lower compartment by means of a ball-cock or float-valve; and the lower compartment communicates, by means of a pipe, with the atmosphere, to allow any uncondensed steam to blow off. As the steam from the cylinders passes through the before-mentioned pipes it becomes condensed, and the fresh water, produced by such condensation, will flow into the lower compartment of the reservoir, whence it may be pumped, as required, into the boilers. A pipe also leads from the steam-chest to the condensing-pipes, so that when the engine is not at work, any excess of steam may be condensed and conducted into the reservoir. When the water in the lower compartment of the reservoir is reduced below its determined level, the ball-cock or float-valve will fall and open the communication with the upper compartment, so as to allow water to flow from that into the lower compartment, and thus keep the supply therein at its appropriate height. The condensation of the steam may also be effected by allowing the sea-water to enter into the ship, and to flow through a suitable channel within the hull; through which channel the pipes for conducting the steam from the cylinders are made to pass.

A NEW METALLIC ALLOY. By François Joseph Anger, of Stamford street.—In conjunction with the metals ordinarily used in the manufacture of copper alloys the patentee mixes certain compound substances which are not in the metallic state, but which, during the process of the manufacture, become elementary, and partly enter into the composition of the alloy, and impart to it properties which it otherwise would not possess—being remarkable in its resemblance to gold, not changing color by use,—and being dense, malleable, ductile, homogeneous, and sonorous, to a marked degree.

The following is the process:—In a crucible the patentee first melts 100 parts of good copper, and, while in a perfect state of fusion, he adds 17 parts of zinc, 6 parts of magnesite, or substance of a like nature, though perhaps differing in name, 3.60 parts of ammonia or salt of ammonia, 1.80 parts of quick-lime or other calx, and 9 parts of crude tartar. The crucible is then covered, and the whole allowed to come to a complete state of fusion; when it may be poured into moulds of the necessary shape, or into ingots or bars, to be afterwards shaped for articles of use. If the metal be required of a more tenacious character, tin may be substituted for zinc. According to the ductility or shade of color of the metal which may be required, the proportions of zinc, tin, magnesite, ammonia or salts, quick-lime, and crude tartar, are varied.

AN IMPROVEMENT IN DYEING CLOTH. By Thomas Richardson, of Leeds. —The main object of this invention is to produce a permanent black dye in woolen cloths, and at a less cost than the best black dyes are at present obtained. For this purpose the patentee mordants the cloth with bichromate of potash, and then submits them to a bath composed of sulphate of indigo and other suitable dyeing materials.

In order to prepare, say, six ends of cloth, he pours into a vessel of the ordinary kind used by dyers, any requisite quantity of water, and adds thereto four pounds of bichromate of potash, three pounds of red argol (bitartrate of potash,) and six pounds of commercial sulphuric acid. The contents of the vessel are heated to the boiling point, and the woolen cloth is placed therein and boiled for one hour, it being turned over by means of a winch to keep it even. The cloth is removed from the vessel, and hung over a horse-tree to drain away the superfluous liquor; after which the cloth is ready to undergo the dyeing operation.

The dyeing liquor is prepared in a second vessel, similar to that used in the first operation. For this purpose the vessel is filled with water; and one hundred pounds of logwood, four pounds of camwood or other red wood, two pounds of fustic, four pounds of the sulphate of indigo, and three pounds of sulphuric acid are added thereto. This mixture is heated to about 200° Fahr. and the cloth is then entered; the liquor being kept to boiling point for about one hour and twenty minutes. During this time (which will in general suffice for completing the dyeing operation) the cloth is turned over frequently by means of a winch to insure the thorough exposure of the whole body of the fabric to the dyeing liquor. It is next removed from the dye vessel, and rinsed in a washing machine along with a little fuller's earth. With a smaller proportion of bichromate of potash and logwood than is given above, a blue color, resembling indigo dyed blue, may be obtained. When a full black is required, it will be found an improvement to use a little acetate of lead.

Improvement in Preparing Pulp or Pulpous Material, applicable in the Manufacture of Paper, and for other useful purposes. By Francis Burke, of Woodlands, Montserrat, British West Indies.—This invention consists of a mode of reducing vegetable substances to a state of pulp, applicable to the manufacture of paper and for other useful purposes.

The object of the inventor is to convert the fibres of vegetables into pulp, without having recourse to the process of separating the fibrous matter from the other component parts of vegetable substances; and to effect this object, he adopts means for simultaneously or in one process reducing the fibres to pulp, and separating the pulp from the gummy and other vegetable matters with which they are combined. The vegetable substances to which the process is applicable are the plants known as the plantain, the banana, and the aloe, and any other vegetable substances containing fibrous matters from which the other matters contained therein can be separated by water, whilst undergoing the operation hereinafter described.

When necessary, the vegetable matter to be operated upon is first cut, crushed, or bruised, for the purpose of reducing it to such a state of division as will permit of its introduction into a mill to be ground. If the vegetable be plantain, banana, aloe, or any other similar vegetable substance in a green state, it is preferred to crush it between rollers, so as to deprive it of its fluid matters.

To reduce the vegetable matters to pieces of a convenient size, a chaff-cutter, saw, or other convenient means may be used, according to the nature of the material. The material thus prepared, is ground in a mill made of a pair of plain stones, similar to those of an ordinary flour mill, with the eye of the runner or upper stone somewhat enlarged, so as to facilitate the admission of the material.

Either the upper or the lower stone of the mill may be made the runner; but it is most convenient to have the upper stone the runner, and motion may be given to it in the same way as in ordinary flour mills. The material to be ground is fed simultaneously with a stream of water into the eye of the mill; the supply of water being sufficient to convert the vegetable material when round into a fluid pulp.

The water used may be either hot or cold, but cold water is preferred and when necessary, any chemical agent may be dissolved in it to facilitate the separation of the fibres from the other vegetable matters with which they may be mixed. The vegetable fibres, as they are ground to a pulp, are thrown out at the periphery of the stones, round which a trough is placed to receive it; from whence it runs into suitable sieves, by which the fibrous pulp is separated from the water, which passes away carrying with it the soluble matters, and also many minutely-divided insoluble or non-fibrous matters which may have been separated from the fibrous matters by the action of the mill

The pulp of vegetable fibres, thus prepared, may, if desired, be bleached and otherwise treated in like manner as pulp prepared or obtained in any other manner, and may also be used or applied in the manufacture of paper, mill-board, or papier mache, or for any other purpose for which it may be applicable The pulp, thus prepared, may be compressed into forms or masses, so as to be stored for use, or more conveniently transported to a place of manufacture.

Improvements in Apparatus for Copying Letters and other Documents. By Alexander Robert Terry, of Adelphi-Terrace.—The object of this invention is to combine apparatus with the cover of a book (composed of suitable paper) in such manner that the act of closing the book shall be the means of copying a letter or letters or other written documents inserted between the leaves of such book. For this purpose, a metal frame is applied to each lid of a book, and when the book is closed they are connected together by links, which are attached to one frame, and hook on to projections on the frame of the other lid. By this means the two frames are drawn thightly together, and the papers between the covers is compressed so as to yield copies as effectually as when a copying-press is used.

Improvements in the Manufacture of Tyres for Wheels. By Herbert Mountford, of Derby—This invention has for its object improvements in the manufacture of the tyres for wheels, in order to adapt the wheels to run at different times on hard land and soft, as circumstances may require. For this purpose the tyre for the wheel is rolled, on its exterior surface, with a projecting longitudinal rib, which may be square or rounding: so that when the wheel is on a hard road, or surface, the tyre will run on its longitudinal rib; but when on soft land, the rib will penetrate, and the whole breadth of the tyre will rest on the land.

The various forms of tyre, according to this invention, are made by grooved rollers, employing wrought-iron or steel, or wrought-iron and steel combined, or an any other metal.

Improvement in the Construction of Harrows. By Edward Hammond Bentall, of Heybridge.—This invention relates to the fixing of the tines or teeth of harrows in their sockets in such a manner that they will be prevented from working loose. To this end, square or rectangular socket holes are punched in the beams to receive the squared or angular part of the stem of the harrow-teeth or tines: and through the cross bars round holes are punched, through which the threaded end of the tine projects to receive a nut, as usual. When the nut is screwed up tight, it is secured in its place by riveting or otherwise securing to the bar an abutting piece, which will fit close against one side of the nut, and thereby prevent it from turning on the tine; and the tine itself being prevented from turning on its centre by fitting into the square or rectangular socket in the beam.

IMPROVEMENTS IN THE MANUFACTARE OF ORDNANCE SHELLS AND OTHER HOLLOW VESSELS. BY RICHARD PETERS, of Union-street Borough.—This invention consists in the employment of a hollow mould, made in two or more parts, into which the metal or other material to be moulded, is poured through a pipe, which descends about midway into the mould,—and imparting to the mould, after a sufficient amount of metal or other substance in a fluid or a semi-fluid state has been poured therein, two centrifugal motions at right angles or nearly so to each other. The centrifugal force acting in all directions, distributes the contents of the mould evenly all round the inside thereof; while the internal pipe acts as a vent for the escape of air and gases, and prevents any considerable quantity of material (if any) being forced therefrom. On stopping the two motions and opening the mould, the hollow article will drop out perfectly formed. When making a shell, a ferrule, threaded on its inside, is set round the internal pipe and being incorporated with the shell, it will be ready for receiving a fuse threaded with a corresponding screw.

IMPROVEMENT IN THE MANUFACTURE OF GUN-BARELS, PIPES, AND TUBES. BY SAMUEL PEARSON, of Woolwich.—This invention refers to the manufacture of twisted barrels and pipes. According to the method of forming such barrels as now practised, a strip of metal is wound spirally round a centre, —the edges of the strip forming butt or scarf joints, which are found in practice to be faulty. Now this improvement consists in forming barrels and pipes of two V-shaped strips of metal, which are wound spirally round a centre; the base of the V in one strip being placed nearest the centre, while the apex or narrow part of the upper V-shaped piece is placed downward, or nearest the centre; whereby the spaces between the first strip will be filled up, and after being rolled and welded in the usual manner, or otherwise finished, will form a perfectly tight and solid barrel or pipe.

IMPROVEMENT IN COATING WROUGHT IRON. BY EDMUND MOREWOOD, AND GEORGE ROGERS, of Enfield.—In the manufacture of japanners' ware, painted work, and for a great variety of purposes, very large quantities of tin plate, and sheets of iron coated with alloys of tin, or zinc, are used, and in coating these and also other forms of wrought-iron, it has been usual to dip the iron into the melted coating metal, by which the iron has become coated with a larger proportion of tin or of its alloy, or of zinc, than is required for japanned ware, painted work, and a great variety of other purposes. Hence, the cost is unnecessarily increased, and the iron, by being dipped into the melted metal, is more or less injured in its toughness, and is rendered less flat and even on its surfaces. In some cases it has been the practice previous to dipping sheets, plates, and other forms of wrought iron into melted tin or zinc—to deposit upon them a thin coating of tin from a solution of that metal; and such deposited coating of tin on wrought-iron, the patentees have found sufficient when protected, as herein described, for japan-ware, painted work, and for a variety of other purposes.

The present invention consists in giving to sheets, plates, or other forms of wrought-iron, a coating of tin from a solution (omitting the dipping in melted tin or its alloy, or zinc), and in afterwards applying a non metallic coating or coatings of a material or compound which is repellent of moisture, and which may be used at so low a temperature as to leave the iron as nearly as possible with its original form and toughness. For this coating the patentees prefer a resinous or such like matter as will not interfere with but rather aid the process of soldering the iron, when it may be *desired* to do so.

Sheets, plates, or other forms of wrought-iron having been coated by a deposition of tin from a solution (which, separately, is not claimed) are to be washed with water (for which purpose, a stream of running water, either hot or cold, should be used), in order to free them as much as possible from the solution of tin or other matter which they may have taken up.

When well washed, the pieces of wrought-iron are coated with *varnish or* japan. The preparation preferred, is about two-thirds rosin, and one-third grease or tallow—keeping the temperature of the mixture at about 240° Fahr., or at such a point, that on withdrawing the metal from the hot mixture, the moisture will have been boiled off from the surfaces, and a thin coating of the mixture will be found to cover the metal. *This thin coating* is reduced by rubbing the metal in hot bran or sawdust, *placed in a pan*, and kept heated with boiling water underneath, or by *other suitable arrangements*. Or the inventors dry the solution-tinned articles in an *oven or over* a coke fire) or otherwise, immediately after washing, and then, *instead of* coating them by dipping into the before-mentioned melted mixture of rosin and grease, they dip them into a solution of rosin and tallow dissolved in coal of naphtha in the proportion of two ounces of tallow and ten ounces of rosin to one gallon of coal naphtha, at the ordinary temperature of the atmosphere; and after allowing the articles to stand in order to dry, they immerse them in the solution of shellac and rosin, hereafter mentioned. The sheets, plates, or other articles coated with rosin and tallow are dipped into a solution of shellac, or shellac and rosin, in the proportion of three-fourths shellac to one-fourth rosin, dissolved in wood naphtha or alchohol, say about three quarters of a pound of shellac and one quarter of a pound of rosin in two gallons of wood spirit or strong alcohol, of fifty to sixty degrees above English proof; by which means, a coating which will be moisture *repellent*, is obtained. By thus coating sheets, plates, and other forms of wrought-iron with tin from a solution, and afterwards protecting or preserving the same by a moisture-repellent coating or coatings of the above-described character, a manufacture is produced highly usesul for a great variety of purposes—the sheets and plates, nearly, if not entirely, retaining their flatness and the iron its toughness and the sheets or plates admit of being bended or shaped; and such coated metal is valuable for a great variety of useful purposes.

Improvements in Dyeing or Coloring the Hides and Skins of Animals. By Isaie Lippman, of Rue Geoffroy Saint Hiliare, Paris.—This invention consists, in the first place, in submitting hides and skins to the process of dyeing before they are tanned. According to the plans now in use the skins or hides are usually tanned first, and then dyed or colored afterwards; but by reversing these processes, the patentee has discovered that considerable advantages are obtained. By dyeing the skins before tanning them, processes and materials which are cheaper and better than those usually adopted, may be employed; a more permanent color will also be obtained than when the skins are subjected to the ordinary process, and will even resist the action of acids. There is also considerable economy in the labor incidental to the process, and the skins or hides, when prepared according to the improved plan, are more supple and softer than when the ordinary process is employed.

The second improvement relates to a mode of dyeing the skins or hides so as to present a variegated or marbled appearance. This is effected by simply crumpling the skins up, and tightly securing them in this state while they are submitted to the action of the coloring matter in the dyeing vat. The result will be, that the coloring matter will only penetrate and act on certain parts of the skins, leaving certain other parts unaffected, and upon unfolding the skin it will present a mottled appearance. This operation may be repeated two, three, or more times in different colored dyes, the skins being of course unfolded and crumpled up again previous to every operation, so that fresh surfaces may be presented. This mode of mottling or ornamenting skins may be employed either before or after the skins or hides have been tanned.

The third head of the invention relates to a method of imparting a metallic lustre to skins or hides. For this purpose, the skins are submitted to the action of certain dyeing materials which have the property of communicating this appearance thereto. The dye-wood which is found most suitable for this purpose is logwood (known in France as *bois de campêche ;*) but other varieties of dye-woods may be employed under certain circumstances. When the skins have been submitted for a suitable length of time to the operation of the dye, they are afterwards subjected to the action of chemical salts (by preference alkaline salts), which will cause the metallic appearance to come out on the surface of the skin or hide.

The patentee claims, "First,—submitting hides or skins to the process of dyeing before being tanned. Second, the method herein described, or any mere modification thereof, of imparting to skins or hides a mottled appearance. Third,—the method herein described, or any mere modification thereof, of imparting to the surface of hides and skins a metallic lustre."

ROUTE FROM NEW-YORK TO PITTSBURGH.

CAMDEN AND AMBOY RAILROAD, PENNSYLVANIA CENTRAL RAILROAD, READING RAILROAD, SUSQUEHANNA AND DAUPHIN RAILROAD.

We propose describing sundry routes from this city to distant points, as occasion may offer, as a sort of general guide to the traveler.

The route from New-York to the Great West, by the Camden and Amboy railroad to Philadelphia, thence to Pittsburgh by the Pa. Central, is one of the most picturesque and romantic in the Eastern portion of the Union. Commencing at this city, we take the steamer for Amboy, and passing through the bay of New-York, we obtain a fine view of Castle Garden, Governor's Island, the bay, and the city, and are regaled with the fresh sea-breeze. Passing New-Brighton on Staten Island we enter the Kills, and are soon at Amboy. Here the cars are taken for Camden, and passing through the southern portion of New-Jersey, we arrive at Philadelphia in five hours from starting. This road is under the superintendence of W. H. Gatsmer, Esq., whose aim is to make his passengers safe and comfortable. From Philadelphia to

Harrisburg are two routes, one by State line, the other, by the Reading railroad to Auburn, thence by the Susquehanna and Dauphin railroad. Leaving Harrisburg four miles, we cross the Susquehanna over an arched bridge, and here the bridge, the river and the mountains, taken together, and combining in one view the beauties of nature and art, form one of the most beautiful and interesting views in the country. We now pass up the Valley of the Susquehanna along a continuously romantic region, consisting of mountains, hills, and vales, till we reach the Junietta, thence up the Junietta to Altoona. Here the company have their depot, and here resides Mr. H. J. Lombairt, the efficient superintendent of the road, to whose promptness, skill and energy, together with his discretion in the choice of officers, the company are greatly indebted for the regularity of their trains and the safety of their passengers. Here is also one of the finest hotels on the road. Mr. Thompson is the proprietor.

Leaving Altoona, we commence ascending the Alleghanies, running up a grade of 92 feet to the mile for a distance of 12 miles. The road winds along the spurs of the mountains. Upon the right, rise the towering cliffs of the Alleghanies, and on your left you look down some hundreds of feet into a chasm below, while the eye catches the distant peaks of the mountains, blue from their distance. Continuing along thus till we arrive near Cresson, we pass through a tunnel, described before in this journal; from thence to Johnstown, where is the terminus of the canal. Here is a large establishment for manufacturing iron. We continue on down the Alleghanies, passing the battle-ground of Braddock's defeat, and arrive at Pittsburgh in 13 hours from Philadelphia.

VOLUMES FOR PREMIUMS.—We have on hand several back volumes of *The Farmer and Mechanic*, quarto form, bound, which we will furnish to societies for premiums, at very low rates. We will sell single volumes in quarto form, at $1 25.

Miscellaneous.

RAIN ON THE ATLANTIC.—Lieut. Maury computes the effect of a single inch of rain falling upon the Atlantic Ocean. The Atlantic includes an area of twenty-five millions of square miles. Suppose an inch of rain to fall upon only one-fifth of this vast expanse. "It would weigh," says our author, three hundred and sixty thousand millions of tons; and the salt, which as water, it held in solution in the sea, and which, when that water was taken up as vapor, was left behind to disturb the equilibrium, weighed sixteen millions more tons, or nearly twice as much as all the ships in the world could carry at a cargo each. It might fall in a day; but occupy what time it might in falling, this rain is calculated to exert so much force—which is inconceivably great—in disturbing the equilibrium of the ocean. If all the water discharged by the Mississippi River during the year were taken up in one migthy measure, and cast into the ocean at one effort, it would not make a greater disturbance in the equilibrium of the sea than would the fall of rain supposed. And yet, so gentle are the operations of nature, that movements so vast are unperceived."

HOW MUCH SHOULD A COW EAT.—Cows to give milk, require more food than most farmers imagine. S. W. Johnson, writing from Munich to the *Country Gentleman*, gives an interesting report of some experiments which have been made in Bavaria, from which the following is an extract:

"Our trials have confirmed the view that cows, to give the greatest possible quantity of milk, must daily receive and consume one-thirtieth of their live weight in hay, or an equivalent therefor. If more food be given it goes to the formation of flesh and fat without occasioning a corresponding increase in the yield of milk, but if on the contrary, less food be furnished, the amount and value of the milk will be greatly diminished."

SOWING TURNIPS.—Do not forget that about the last of July or forepart of August is a good time to sow a patch of common turnips. The soil for turnips should be moist, rich and mellow. Ground where corn has failed, or stands too thin will answer, if clear of weeds and well stirred. Or a piece of clean wheat stubble may be ploughed for the purpose; also patches in the garden where peas or early potatoes have been harvested. Turnip-seed is plenty and cheap in most stores where seeds are sold. It is best to buy enough at once to re-sow with in case dry weather or the fly should destroy the first sowing. The seed, if fresh, will keep good for three or four years.

DUBUQUE AND PACIFIC RAILROAD.—The directory of this Company have published a circular in which they state that the first thirty miles of the Road will be open to Dyersville, Nov. 15th, 1856; and asking the counties of Delaware, Buchanan and Blackhawk to subscribe each $250,000 to the capital stock of the second division of the Road extending to Cedar river.—*Pella (Iowa) Gazette.*

THE MONSTER GUN.—The boring of this huge gun, which is now being constructed at the Mersey Steel and Iron Company's forge, Liverpool, is all but completed. When finished the barrel will be 15 feet long; it will he 27 inches in diameter at the muzzle, or 84¾ inches in circumference; and 44 inches in diameter at the breech, or 138 ¼ inches in circumference. The bore will be 13 feet 6 inches long, and 13 inches in diameter. When completed it is estimated it will have cost the company, £3000 in material and labor alone. The gun is expected to be ready in about six weeks, and, with the trunnions complete, will weigh something over 24 tons. When finished it will be drawn through Liverpool by twenty or thirty of the Company's fine horses, and will ultimately be taken to Waterloo to be tested. The charge will be over 100 lbs. gunpowder, with one of the shots of 302 lbs. Mr. Clay, the manager of the works, is superintending the whole of the work.

CAUSE OF BOILER EXPLOSIONS.—Mr. Fairbairn was some time since appointed by the British Association of Science to make experiments in respect to ascertaining the cause of boiler explosions. He therefore had a boiler made so as to determine not only the proportionate strength of the boilers, but also in relation to their management. The boiler was 17 feet in diameter, with two internal tubes, 3 feet in diameter. It stood a pressure of 80 lbs on the square inch, but at 100 one of the tubes collapsed. The object was to discover a means of proportioning the strength of all the parts, because, as Professor Fairbairn believes, the majority of explosions arise from an excess of steam.

The New Rifle.—The peculiarities of a new rifle are, that it has a moderated groove, is a foot shorter than the United States rifle, and can readily be fired ten times a minute and from this to sixteen times by an expert hand. It is loaded at the breech, which receives the cartridge by an operation not unlike the opening of a pair of scissors, and with nearly the same facility. The small pocket pistols are calculated to throw a Minnie ball one hundred yards; a cavalry pistol, with a range of five hundred yards; a rifle, suitable for infantry, with a range of one mile; and a large gun will throw a two-ounce ball, or a small shell, one mile and a half. It is claimed for this new weapon that it will set on fire a house or a ship at a distance of nearly two miles. A good marksman has hit a target a foot square, at a distance of a third of a mile, 97 out of 100 shots, with this rifle; and it is said that it will throw a ball with sufficient force to perforate an inch board at the distance of a mile.

Effect of the Atmosphere upon Marble.—*Professor Henry, of* Washington, has been investigating—under the direction *of the government*—the causes which produce discoloration in marble. This is found to be owing to the previous absorption by the marble of water, holding in solution organic matter, together with the absorption of water from the mortar in which the stones were placed. To illustrate the process, Professor H. supposed a fine capillary tube with its lower end immersed in water, whose internal diameter was sufficiently small to allow the liquid to rise to the top to be exposed to the atmosphere. Evaporation would take place at the upper surface of the column, and new portions of water would be drawn up to supply the loss; and if this process were continued, any material which might be contained in the water would be found deposited at the top of the tube, the point of evaporation. If, however, the lower portion of the tube were not furnished with a supply of water, the evaporation at the top would not take place, and the deposition of foreign matter would be exhibited, even though the tube itself were filled with water impregnated with impurities.

Improved Railroad Axles.—An Irish mechanic has taken out a patent at the British office, for some improvement in axles and axle-boxes of engines and carriages in use on railways, which consist, first in fitting the cylindrical journals of axles with one collar only, instead of two, in order to reduce the friction; second, in constructing axle-boxes so that the main portion of the same, and the step or bearing for the axle journal, can be removed without lifting the carriage off the wheels. For this purpose the lower part of the axle-box is made to open at the top, in order to receive the step or bearing, and that portion of the box which forms the upper grease-chamber or hopper.

Manipulation of Steel and Iron.—The difference between common iron and steel is in the carbon of the latter; but if iron be heated to a white heat and plunged into cold water, it becomes very hard. Mechanics take advantage of this in making axles and collars for wheel-work, for it is easily filed and turned in a soft state, and afterwards hardened. Moulders who make wheels are often embarrassed by the chemical property in iron, for as the metal is poured in the mould of moist sand the evaporation of water carries off the heat and cools the iron so quickly as to make it extremely hard. This is common in such portions of the metal as have run the greatest distance from the aperture of reception. The only remedy for this is to have the sand as dry as possible and numerous apertures.

New Method of Propelling Steamboats.—Some one in Sing Sing, proposes a method of propelling boats which, he states, entirely dispenses with paddle-wheels or shafts of any kind. Instead of the paddle-wheels or propellers, atmospheric air performs the business of propelling. Eight large bellows or air-pumps, making four sets, with two in each set, are placed within the boat and worked by the engine, each one of the two alternately with the other one. Pipes or trunks leading from each bellows or pump unite each set, and are carried to the bottom of the boat for a discharge of the air from the bellows, as follows:—Air is drawn into the bellows from above the boat, through pipes, by the action of the engine, and forced out through the bottom of the boat, backward, against the water—an open channel or curb being provided beneath the boat to guide the passage of the air upon each side, along the keels to the stern of the boat.

Progress and Extent of the Photographic Art.—The city of Paris alone contains 110 establishments exclusively occupied in the manufacture of materials used by photographists, and some of them employ one hundred and thirty workmen. There are seven hundred photographists in Paris, some of whom execute, ninety or one hundred portraits a day, the average being five portraits a day by each photographist, costing fifteen cents each, and sold at an average of $6. The stereoscope is also a branch of photography, in which one Parisian firm has invested $120,000.

Iron Rigging for Ships.—Two lines of ships of about eight hundred tons each, are running between Glasgow and Montreal. They are built of iron, and all their shrouds, stays, backstays—in fact, all their standing rigging is made of wire rope, with hemp centres like that used on some inclined planes of roilroads. This rigging is lighter than hemp of equal strength, holds less wind, and is not subject to stretch after being once set. Each shroud or stay terminates in a screw, by which it can be strained to any desired extent. An improvement in the hanging of the yards is also adopted, by which the yards are made to turn in their lifts, and roll up the sails upon them, from the deck.

New Surveying Instrument.—An apparatus for delineating sections of surveys for railroads, canals, &c., and for computing the solid contents of cuttings and fillings, has been invented. It consists of a standard three feet high, supported on a carriage having three wheels. From this standard is is supported a pendulum, the rod of which extends beyond the suspension point, and there actuates a series of levers as it vibrates. When it is desired to delineate a section of a railroad survey, it is drawn on the ground, in the proper line, and of course the undulations give a proportionate amount of vibration to the pindulum, which again actuates the series of peculiarly combined levers mentioned.

Plating Metals.—The London *Mechanics' Magazine* contains a description of the process recently patented in that city, for coating lead, iron or other metals with tin, nickle or alumina. The first part of the process consists in a mode of preparing a solution of the metal with which the articles are to be coated or plated, for which purpose the inventors proceed as follows:—For tin, they dissolve metallic tin by nitro-muriatic acid, and then precipitate the tin by an alkali, or alkaline salt, preferably by the ferro-cyanide of potassium; they then mix sulphuric acid or muriatic acid with the precipitated oxide of tin, to which is added a portion of water; these are boiled in an iron vessel with a small portion of ferro-cyanide of potassium; the liquor is then filtered, and the solution is completed.

☞ PROF. SILLIMAN ON THE INTERNAL HEAT OF THE EARTH.—Prof. Silliman takes a decided position in favor of the theory that the centre of the earth is a fused mass of mineral matter. His chief argument is the phenomenon of volcanoes, which he calls the earth's chimneys and escape pipes. There are hundreds of them always in operation—hundreds are dormant; they are all over the earth and the seas surface, and they come from the bowels of the earth. The fiery sea in the centre of the earth—says the Professor—boils over the tops of its chimneys, and when these chimneys become choked, it forces new vents, breaking out even under the sea.

THE IRON DISCOVERY IN LIBERIA.—Dr. Hays, the assayer to the State of Massachusetts, has examined specimens of the iron recently discovered in Liberia and subjected them to scientific analysis, with the following result:—Its chemical composition is pure iron, 98.40; quartz grains, magnetic oxide iron crystals, and zeolite, 1.60. There are no other metals present—a fact which prevents the placing of this iron in the class of meteorolites, and the absence of carbon in any form completely removes all doubt in regard to its being possibly of artificial formation.

AN IMPROVEMENT IN CARRIAGES.—An invention for making the connection of the pole or the shafts of a carriage more safe, has been exhibited in Concinnati. A small block of vulcanized India-rubber is inserted in the space, which, in what is called the clip or shackles of the shaft, intervenes between the clip-tire and the round head of the shaft, through which the connecting ball is passed. The block of India-rubber holds the ball in its place with a firm but elastic pressure, and entirely prevents it both from rattling or becoming loosened by motion. The application of this contrivance causes the play of the machinery of the carriage to be performed in perfect silence, and by keeping the bolt in its place, and preventing the nut screwed to it from loosening by motion, obviates the liability to accident.

NEW MATERIAL FOR PAPER-MAKING.—At a meeting of the British Association, the Chevalier Clausson read a paper on *papyrus Bonapartea*, and other plants, which can furnish fibre for paper pulp. The straws of the cereals cannot be manufactured into paper pulp, unless cut before they are ripe, as the joints or knots of the stalks are so hardened by ripening, as to resist bleaching agents. Many grasses contain from thirty to fifty per cent. of fibre, not strong, but easily bleached; ground reeds and canes contain about an equal amount. After examining many kinds, the Chevalier turned his attention to the papyrus, which he found to contain about 40 per cent. of strong fibre, excellent for paper and very easy bleached. He also found that the common rushes contain 40 per cent. of strong fibre, which is a perfect substitute for rags, one ton of them containing more fibre than two tons of flax straw.

COMPRESSIBLE LIFE-BOAT.—The new life-boat of Mr. Berdan, of this city, is a compressible boat, made of a strong frame of wood, thoroughly braced, covered with very heavy three-ply canvas, coated with India-rubber inside and out; a large air compartment, in the form of a cylinder outside the boat, passing from stem to stern, between the water's edge and the gunwale-bars on both sides, so as to prevent a capsize. The gunwale-bars and ribs are hinged to the keel, so that when the boat is not required for use the ribs can be thrown parallel with the keel, and thus allows the gunwale-bars or guards to fall down on both sides close to the keel, thus greatly compressing the boat.

Pennsylvania Coal.—The whole amount of coal sent to the market from the anthracite regions of Pennsylvania, during the year 1855, is now ascertained to be about six million four hundred thousand tons—an increase over 1854 of about seven hundred and fifty thousand tons. It is fair to estimate that this has brought money into the State at the rate of about three dollars a ton, so that Pennsylvania has realized from her anthracite coal mines over nineteen millions of dollars during a single year. The additional advantage she has gained in the immense amount of profitable labor this coal business yields to a large portion of her population, and the employment it gives to her public works, cannot be estimated.

Pennsylvania, in her coal deposits, possesses a means of wealth which begins to compare with the gold deposits of California. In value our coal product already exceeds that of either of our crops, wheat, corn or oats. Thirty years have built up this enormous and remunerative business. In the next thirty, with greater capital, new railroads and canals, more extended markets, vaster population, and increasing manufactures, the coal product of Pennsylvania bids fair to equal all her agricultural products and to surpass the annual yield of gold from California.—*Phila. Bulletin.*

Remarkable Watch.—At the French Exposition there was exhibited a watch which created much interest and admiration. It tells the name and day of the month, the equation of time, is a repeater, striking the minute as well as the hour; is a thermometer of tolerable accuracy, and winds itself up by the action of its own movement. The price of this ingenious piece of workmanship is 30,000 francs (over $5000.)

Gloucester and Marblehead Fisheries.—The fisheries of Marblehead were at one time the wonder of the whole country, such was their extent and importance. In 1812 the fishermen from that town almost manned our northern ships of war. The fisheries of Gloucester at the present time are at least *three times* as extensive as those of Marblehead were in her palmiest days. Gloucester employed last year 300 schooners, 20,000 tons burthen, and manned by 2980 men. Besides its catch of Mackerel, the largest in this country, (70,000 bbls.) Halibut, and other kinds of fish, it sent to market 98,000 quintals of Cod Fish. In addition to its great fisheries, Gloucester has 10,000 tons of shipping in the foreign and coasting trade, and last year had 207 arrivals from foreign ports, bringing, among other articles, 5000 hhds. molasses, 3,000 hhds. Sugar, 5000 cords Wood, and great quantities of Salt, Lumber, Coal, &c. Rockport, and the adjacent ports, are not included in these statistics, although they are in the district of Gloucester.

Peach Tree Borer—Tansy.—We saw it stated, two year ago, in an agricultural journal that these pests could be driven from peach trees by tansy.

We planted it at the roots of some ten or twelve trees, and not one of them have been disturbed, whilst others are injured badly. This spring we intend planting it around all.—*Newberry* (*S. C.*) *Sun*.

THE grain crop of Illinois for 1855 is said to be as follows:

Indian corn, bushels,	180,000,000
Wheat,	20,000,000
Oats, barley and rye,	50,000,000
	250,000,000

The estimate is believed to be under rather than over the actual result.

TYPE PUNCHES.—The Americans are, as a rule, a quick-witted, intelligent go-a-head-ative race. There are, however, occupations and pursuits requiring a union of skill and patience which this country is not calculated to develop. What would America be without her press, her newspapers, her books? Yet we are assured that there is not a man in this country who can cut a punch for book type. Certain it is that all the best book-type used or cast in this country is made from punches cut in London and Edinburgh. The Scotch, it is generally admitted, are the best cutters of letters; the Germans of music; the French of borders and ornaments. Those who are not familiar with those matters may be surprised to learn that it requires vastly more skill to make a set of steel punches with which to sink the *dies* or *matrice* for an alphabet, than to make the most finished chronometer. It is work requiring a peculiar organism. A punch-cutter, like a poet, an honest man, or a "dead shot," is *born*, not *made*.—*Phonographic Reporter*.

FORETELLING THE WEATHER—In a cloudy morning, it is a matter of importance to the farmer to know whether it will be sunshine or showry in the afternoon. If the ants have cleared their holes nice, and piled the dirt up high, it seldom fails to bring a good day to farmers, even if it should be cloudy till ten or eleven o'clock in the forenoon. Spider-webs will be very numerous about the tops of the grass and grain some cloudy mornings, and fifty years' observation has shown the writer of this, that those little weather-guessers seldom fail in their predictions of a fair day.—*Southern Cultivator*.

"IMPORTS.—The value of imports from the first quarter of this year ending September 30th, is $72,021,950; exports, $60,599,290, or an excess of imports of $11,422,651. In the exports is the sum of $13,671,866 in specie." Jonathan can never get rich in this way.

HAVRE DE GRACE.—One hundred men and forty sloops belonging to Havre de Grace, Md., are employed annually, through the proper season, in supplying the market with wild ducks.

A NEW RIFLE.—Eli Thayer has commenced at Worcester, the manufacture of a new rifle, the invention of B. F. Joslin, an ingenious mechanic. The *Spy* says that this rifle is superior to "Sharp's," as it can be more rapidly loaded, and is simpler, safer and cheaper.

BRADY'S AMBROTYPES.—The reputation of Mr. Brady for his Daguerreotypes has been long established. No artist stands higher than he. The art of taking those pictures on glass is one of quite recent date, but is exceedingly beautiful. It was introduced here by Mr. Brady, who exhibits unrivalled pictures in this style. All lovers of the beautiful may occupy an hour very agreeably by a visit to his rooms, 359 Broadway.

HANDWRITING.—Mr. MacLaurin.—Various systems have been contrived for giving facilities in acquiring a good style of penmanship. Among others, we think very highly of one designed by Mr. MacLaurin. "The arrangement by which this is effected, consists in joining the end of an actual printed model OF A LETTER OR ELEMENT OF A LETTER, *over the surface of which the practice is had* to the beginning *of the same model* so as to secure *continuity and rapidity of movement while in the act of repeatedly overrunning the same surface;* thus Mr. MACLAURIN combines, in the same moment of practice, as must be done in actual writing, the two essential elements of good writing —rapidity and correctness of shape—and insures the result of making a rapid and fine writer of the pupil, which no other system ever did."

S. R. PARKHURST'S BURRING MACHINES.—Mr. Parkhurst has brought a suit against Mr. Israel Kinsman, and Calvin L. Goddard, on his patent for the Toothed Ring Burring Machines, in the United States Circuit Court, for the Southern District of New-York, and recovered against them a decree of $23,220 $\frac{28}{100}$, for Burring Machines, made by them prior to the 11 of March, 1848. From this decree, Kinsman and Goddard appealed to the Supreme Court of the United States, and there he obtained a decree affirming the decree of the court below, and awarding him $285 93 with costs.

The patent is still in force, and all persons and manufacturers, making, selling or using the said machines are liable therefor to the patentee.

The manufactory is at Nos. 203, 205 and 207 Center Street, New-York.

EXTRAORDINARY YIELD OF CORN FROM BROADCAST SOWING.—Major W. S. Mellinger, near Monongahela City, Washington county, informs us that about the first of May he sowed 1¾ bushels of corn (broadcast) on one acre of ground, intending to cut it up for fodder. Finding in the summer that it was growing about as rapidly as his corn planted and worked in the usual manner, he concluded to leave it to mature. When the time arrived for harvesting, he found it to yield 150 bushels of ears of good corn, and 5 tons of fodder. He says that he had besides about 30 bushel of nubbins, not counted in the above. If such results could always be anticipated from sowing broadcast, we see no reason why corn intended for feeding purposes should not be planted in this way or in drills, (which would be more scientific.) It would not do, however, to rely upon this kind of planting for seed, as we think there is no doubt but it would degenerate in its originality. We suppose, however, that no reliance could be placed upon this mode, except when a wet season like last summer would prevail, or when the land could be properly irrigated.—*Western Agriculturist.*

PASSUMPSIC RAILROAD.—The following statement has been overlooked in our copy drawer for some time, but it is too good to be lost. Mr. Fairbanks' enterprise is not confined to the manufacture of his scales, nor to his own business merely, but is visible in whatever he undertakes. The following is from a St. Johnsbury correspondent of the Rutland *Herald:*

The Passumpsic Railroad Company has achieved a financial exploit, the like of which has not been accomplished by any other railroad company in the State—no less than the payment of their mortgage bonds on the very day of their maturity. Seventy-five thousand dollars of these bonds fall due to-morrow, and the company has the cash in the treasury ready to pay them. Most of this is derived from the net earnings of the road, while the small balance requisite to make up the amount is procured by a temporary loan. Considering that the Company has paid its stockholders' dividends, amounting to 18 per cent. on the capital stock, this payment of the bonds must be regarded as evidence either of very good fortune or of very good management.

The Tables Turned.—There was a time when we were indebted to Europe for a portion of our finest machinery, and foreigners regarded American ingenuity as at its climax in the production of wooden nutmegs and clothes-pins. Latterly we have astonished them with our patent reapers and and six shooters, and, at last, they have come to acknowledge that our mechanics are entitled to rank with the best of their own. A further illustration may now be given. Yesterday a sloop arrived at this harbor, bringing from the Jersey shore 40 tons of iron machinery, constructed for use in Scotland, and the same is now being shipped direct to Glasgow. It is designed for the manufacture of India rubber goods, a process in which America is ahead of the world.—*N. Y. Jour. of Commerce.*

The Pneumatic Battery is an English invention. The gunpowder is is deposited in its proper place; a gutta-percha syphon tube extends upward from it, and descends into a gutta-percha vessel containing sulphuric acid; another gutta percha tube extending to any distance necessary for the safety of the operator, connects the vessel with an air-pump. A few grains of white sugar and chloride of potash are mixed together and placed on the top of the gunpowder, then the air-pump is worked, which forces a little sulphuric acid through the syphon, bringing it in contact with the sugar and chloride, and the chemical action produces an instant explosion.

Puddling Iron.—James Naysmith, the inventor of the steam hammer, has effected an improvement of great value in puddling iron. It consists in the disengagement of the carbon from the molten metal in the puddling-furnace by subjecting it to the action of currents of steam, introduced as near as possible at the lowest portion of the molten metal, thence diffused upwards, so as not only to mechanically agitate the metal, and thereby keep exposing fresh surfaces of it to the action of the oxygen of the air passing through the furnace, but also to remove the sulphuric and other deleterious substances in the iron, by thus making the oxygen of the air and also the hydrogen of the water combine with them, and carry them off in a state of acid gas.

A Wonderful Invention.—A correspondent of the *News*, writing from Austin on the 18th of January, thus notices a new invention:

"The great invention of the age is Gen. Chambers' terra-acqueous machine; it has been privately submitted to Committees of both branches of the Legislature, and I am credibly informed that it has been demonstrated to the entire satisfaction of all the members of both Committees, that the invention is a valuable one, and likely to create an entire revolution in the means of transportation. It is represented not to have any wheels, and not to slide, and yet, by some peculiar arrangement, will, on a graded road, make forty miles an hour. The road will be much wider than the rail track, but will require no iron, and possibly cost less than a double track. It will cross rivers or bays at the rate of ten miles per hour. This is a short description of a machine applicable to both land and water. The inventor claims that thes ame principle may be applied to machines intended solely for water transportation, and that the speed of some twenty miles per hour may be obtained. The invention may seem too extravagant for credience, but as some men who have acknowledged mechanical skill, pronounce it a valuable invention, I deem it worthy of notice."

PATENTS ISSUED IN 1855.—The whole number of patents issued in the year 1855 was 1,943. The number for additional improvements was 10, and the number of re-issues 49. The number for designs, included in the totals as above stated, 67. The "Pen and Lever" gives the residence of the parties to whom patents were issued during the year as follows:

New-York, 552; England, 15; Massachusetts, 304; France, 14; Pennsylvania, 237; Alabama, 13; Ohio, 133; Delaware, 8; Connecticut, 108; Tennesee, 8; New-Jersey, 82; Mississippi, 8; New-Hampshire, 47; Missouri, 8; Virginia, 45; Iowa, 7; Illinois, 45; South Carolina, 6; Indiana, 37; Georgia, 6; Maryland, 34; California, 5; District of Columbia, 33; Texas, 5; Vermont, 33; Florida, 4; Michigan, 29; North Carolina, 3; Rhode Island, 26; Canada, 3; Maine, 24; Prussia, 3; Kentucky, 23; Arkansas, 1; Louisiana, 17; Belgium, 1; Wisconsin, 15; Germany, 1.

LARGE SUSPENSION BRIDGE.—A new suspension bridge is to be built across the Monongahela, from the point to Jones' Ferry, at Pittsburg. The bridge is thirteen hundred and fifty feet long, and consists of two suspensions supported by piers at each end, and one in the river. The first suspension is 900 feet long—and the second 450 feet. The bridge at its culminating point is 112 feet from the water, as required by the Supreme Court in the Wheeling bridge case. The estimated cost of the bridge is $400,000.

LIGHT-HOUSE.—A revolving light for coast towers has been on exhibition recently in New-York which promises to supersede all the old lights. It is supplied by gas instead of oil; revolves in such a manner as to indicate, by its flashes, the number of the tower, and consequently its position; and its shadow may be seen, it is said, to the distance of twenty or more miles. If not too complicated for general use, it must prove a valuable improvement, as well as an ingenious invention in the matter of light-houses.

IMPROVED PLANE IRON.—Mr. H. Harris of N. Y., has invented an improved plane iron. In this improvement the cutting iron is placed inside of a thin piece of metallic case, open at both ends. This case with its cutter, is wedged into the plane in the common manner. The cutter is moved up and down within the case by means of a set screw. The thickness of the shaving is adjusted with the utmost facility, all that is required being simply to turn the screw.

IRISH AGRICULTURE.—A correspondent of the *London Times*, in commenting upon the progress of Irish agriculture, states that during the past fourteen years the value of farm stock in Ireland has increased from £22,000,000 to £35,000,000 sterling, and that the number of horned cattle has risen from 2,000,000 to 3,250,000, while the quality has correspondingly improved. Still, however, of the 20,000,000 of acres which Ireland comprises, only about one-fourth is under direct tillage, and fully one-third in pasture.

Georgia and her Railroads.—Georgia is nearly checquered by railroads, and yet she stands before the world with a debt only of two millions six hundred and forty-four thousand two hundred and twenty-one dollars against her on the balance sheet. No other State in the Union can point to the same amount of works of internal improvement, and show so small an indebtedness.—*Cotton Planter.*

The aggregate assessed valuation of property in New-Orleans this year is $846,860 less than of the year 1854.

Guano for Grass Lands.—We have recently conversed with two gentlemen—both practical men and of critical observation—who informed us that they have now fields in grass, and yielding good crops, laid down some five, six and seven years ago, manuring them solely with guano, and receiving little or no manuring since. If such were to be the general result, we might bring up our farms to a wonderful degree of fertility, because a third *or half* of the tillage land laid to grass with guano, and producing a *fair crop* for several years in succession, would enable us to appropriate *all the manure* of of the farm to the hoed crops. This would allow of *very high manuring,* and put the land in such condition as to produce heavy grass crops *without* the further application of guano. But we need further experiments, and *test* the guano upon its own merits, by putting the land into grass without a particle of any other manure.—*N. E. Farmer.*

Zinc Ore in New-Jersey.—The zinc ores of New-Jersey are believed to be the richest in the world. A single block of the red oxyde, weighing 16,400 lbs., obtained from the Sterling Hill mine, was exhibited at the London World's Fair, and surprised all who saw it. The American Zinc Manufacturing Company at Newark, N. J., which was established a few years since, promised to flourish; yet we have been informed that it has not been so successful as to compete with the Vielle Montague Company, at whose works the smelting is conducted with great skill. Its success, however, is simply a question of time, where the ore is rich and abundant and fuel plenty, as is the case in our country.—*Scientific American.*

Cheese-Making.—A few months ago, I visited a lady friend in the country; her table was constantly supplied with most delicious cheese, of her own making. I asked as a particular favor, that she would communicate to me her peculiar method of making it, and wherein she differed from others. She replied that she followed the method that she had been taught generally, prepared the rennet in the same way, but felt sure that she had discovered the reason why cheeses were strong, both to the taste and smell, which consists in the single circumstance of putting the curd to press, *warm.* She did not use any artificial means to cool the curd, but after it had been chopped and scalded, allowed it to remain spread upon the cloth until it was as cool as the surrounding atmosphere, and thus put it to press.—*N. E. Farmer.*

Juice of the Water-Melon.—A correspondent of the *Prairie Farmer* presents the following method of using water-melons:

I endeavor, every year, to raise a good water-melon patch. They are a healthy and delightful fruit, I think. I cultivate the icing variety; plant early in May, and again towards the end of the month, so that they may come in succession. When they commence ripening, we commence cutting, and use them freely during the hot weather. When the weather becomes cool in September, we haul a quantity of them to the house, split them open, with a spoon scrape out the pulps in a cullender, and strain the water into vessels. We boil it in an iron vessel, then put in apples or peaches, like making apple-butter, and boil slowly until the fruit is well cooked, then spice to taste, and you have something that most people will prefer to apple-butter or any kind of preserves. Or the syrup may be boiled without fruit, down to molasses, which will be found to be as fine as any sugar-house molasses. We have made in a fall as much as ten gallons of the apple-butter, if I may so call it; and molasses which has kept in fine condition until May.

SALT AND GUANO.—Recent experiments, as stated in the *Mark Lane Express*, go to show that common salt is a valuable addition to all applications of guano to the soil. It not only has a tendency to give strength and hardness to the straw, (which guano weakens,) but prevents the loss of ammonia, which is constantly going on even in a dry atmosphere. M. Barral, the editor of a French Agricultural journal, says: "We left in the open air, in plates, during 15 days, equal weights of the pure guano and the guano previously mixed with salt. At the end of that time we examined anew the amount of nitrogen, and found that the pure guano had lost 11.6 per cent. of its nitrogen, while that mixed with salt had only lost 5 per cent." The *Express* recommends the use of refuse salt from fish packers for this purpose, and any refuse salt would probably answer the purpose.

WEALTH OF ATLANTIC CITIES.—The wealth concentrated at the great commercial points of the United States is truly astonishing. For instance, one-eight part of the entire property of this country is owned by the citizens of New-York and Boston. Boston alone in its corporate limits owns *one-twentieth* of the property of this entire Union, being an amount eqûal to the wealth of any three of the New-England States, except Massachusetts. In this city is found the richest community, *per capita*, of any in the United States. The next city in point of wealth, according to its population is Providence, R. I., which city is one of the richest in the Union, having a valuation of fifty-six millions, with a population of fifty thousand. The bare increase per annum of the wealth of Boston is equal to the entire valuation of many of the minor cities, such as Portland, Salem, New-Bedford, Buffalo, Chicago, Louisville, &c.

AN IMPORTANT RAILROAD PROJECT.—The Oswego *Times and Journal* contains a full report of a meeting held in that city to secure the building of a railroad, six feet guage, from Oswego to Syracuse—35¼ miles. From Syracuse to Binghamton, on the New-York and Erie Railroad, there is a road already in operation, so that it needs but the building of 35¼ miles of road to connect Lake Ontario with New-York by a broad guage road, requiring no change of cars or transhipment of merchandise. At the meeting, speeches were made by the Hon. Daniel S. Dickinson and others, and the right kind of spirit seemed to prevail. The estimated cost of the road is $761,106. An able report was presented by W. B. Gilbert, Esq., showing the importance of the road and its relations to western commerce.

TO FIX CARPETS ON FLOORS.—A correspondent in writing from Florence says:—"Here iron rings are fastened in the floors, when the carpets are laid, and they have large hooks in the binding, for which these rings are eyes; so that there is no taking out and nailing in of tacks, and carpets are raised and laid as noiselessly and easily as bed covers.—*Family Herald.*

WHALE FISHERY.—From several sources we gather the following items in regard to the whale fishery, interesting to those who still burn oil in their lamps. The total number of vessels employed in 1855, was 585 ships and barques, 21 brigs and 20 schooners. Of the above vessels there is owned in the State of:

	Ships.	*Brigs.*	*Schs.*	*Tonnage.*
Massachusetts,	475	17	23	160,840
Rhode Island,	20			6,736
Connecticut,	50	3	6	21,067
New-York,	31	1		10,498
	585	21	29	199,141

The oil brought into the United States in 1855 by this fleet was *72,649* bbls. sperm, 184,015 bbls. whale oil, and 2;707,500 lbs. *of whalebone. The* prices have steadily increased; sperm being about $1 *77 per gall., at whole*-sale, and whale 71 cts. In 1844, sperm oil was 63 cts. and whale *oil 31 cts.* per gallon.

A GREAT RAILWAY.—"The whole number of cars and locomotives on the Erie Railroad," says the *Newark Advertiser*, "is 3,168, which, if coupled together in one train, would reach a distance of twenty-one miles, and be able to carry 150,000 persons in one day from New-York to Lake Erie. The company has in its employ not less than 5,000 persons, whose pay, per month, is $125,000, or $1,500,000 per year. There are single miles on this road whose grading cost not less than $170,000 each; and one bridge near the villiage of Susquehanna, built upon seventeen stone arches, cost $320,000. The number of miles from Jersey City to Dunkirk, is 459, and is run over by the evening express train in sixteen hours. The company has in its service six printing presses, which are constantly at work printing tickets that are never used but once, blanks, &c."

OKRA.—This is another plant not yet extensively cultivated at the North, but which deserves a high popularity. It is much cultivated in the southern and middle States, chiefly as an addition to soups. Its long green pods, full of seeds, and abounding in mucus, form the chief ingredient in the famous "gumbo soup." It also makes an excellent stew, cooked as snap beans. The plant grows some six feet high, has a beautiful leaf and flower, and is worthy of its place in the garden for ornamental purposes. The flower resembles that of the cotton plant.

The seed should be sown in drills, two and-a-half to three feet apart, early in May. Thin out the young plants to six inches apart, and hoe frequenly, to secure rapid growth. The pods are only good in the green state, when full of mucilage. We last year secured seeds of this plant, from the Gaboon River, in Africa. They came up well, and matured perfectly. The pod is much shorter and thicker than the variety in common use. The seeds when perfectly ripe, are said to make an excellent coffee, burnt and ground like the berries of the coffee plant. All who affect soups should give the Orka a place in their vegetable garden. The plant needs no forcing, is hardy, and is grown as easily as sweet corn.—*Am. Agriculturist.*

NEW BOOKS.

Library of Standard Letters. Vol. 1. Letters of Madame de Sévigné. One volume, 12mo. New-York: Mason Brothers. Edited by Mrs. Sarah J. Hale.

This volume is the first of a series which certainly commences well. A volume of letters written by so distinguished a lady cannot fail to contain much that is valuable in history, and which can be found nowhere else. It is the filling in of which history is the woof. The plan is most excellent, and this first volume is worthy of extensive patronage.

Library of Standard Letters. Vol. 2. Letters of Lady Mary Wortley Montague. In one vol., 12mo, 408 pages. New-York: Mason Brothers.

This volume, edited by Mrs. Sarah J. Hale, is the second of the series, the first of which we have just described. The present issue follows the text of the edition published by her great grandson, Lord Wharncliffe, as the best authority. In this, no doubt, the editor has done wisely, and the public may place confidence in the general accuracy and originality of the letters of this eminent woman; and they are certainly very entertaining. The work is well executed by the enterprising publishers.

The Mechanic's, Machinist's and Engineer's Practical Book of Reference, and Engineer's Field Book. By Chas. Haslett, Civil Engineer. Edited by Chas. W. Hackley, Professor of Mathematics in Columbia College, N. Y. New-York: Stringer & Townsend. 1856.

This book accidentally has laid over a month, but this will do no harm. It will bear the extended examination without injury. It is a wonderful condensation of all sorts of valuable tables, on the subjects suggested by the title, with rules, problems, formulas, with various estimates, etc., which "will excite surprise at their number, novelty and value to every one." It is done up in pocket-book style, and on thin paper, and is very well executed.

The Suffering Savior; or, Meditations on the Last Days of Christ. By F. W. Krummacher, D.D. Gould & Lincoln, Boston. 12mo, 474 pages.

This learned divine is distinguished for his richness of ideas and his graceful style. This volume is highly evangelical. It exhibits in an eminent degree the peculiar genius of the author which is German, and not English or American, but it loses none of its interest from its national characteristics.

The United States Railroad Directory, for 1856. Compiled by Benjamin Homans. To be continued annually. B. Homans, 163 Pearl street, New-York. pp. 211.

Mr. Homans has placed in our hands a handsome volume of the 8vo size, containing the lists of officers in the numerous railroad companies of this country. An alphabetical list of all the railroads of the country—more than 500 in number—is annexed. It is next to impossible to avoid all mistakes and omissions in a new work like this, but it will be found exceedingly convenient for reference, and well worth a place in many an office and counting-room. Mr. H. proposes to add many useful chapters to future volumes.

The Flower Garden; or, Breck's Book of Flowers. Boston: J. P. Jewett & Co. 1856.

This is an enlarged and improved edition of what we have before noticed. Mr. Breck has added many new flowers and shrubs, and has a chapter on Parlor Plants.

More than fifty pages have been added to the work, making it the most complete and practical work on that subject.

BIBLIOTHECA SACRA FOR APRIL. E. A. PARK and S. H. TAYLOR, Editors. Andover, Mass.: W. F. Draper.

Our readers need not be informed of the high rank which this quarterly holds among the religious and literary journals of this country. Whatever may be said of the doctrines it inculcates, or the soundness of its opinions on the great questions in ethics which it discusses, for talent and learning it unquestionably stands at the head of the list of journals of that description. The editors are assisted by many of the ablest writers in the country. $3 00 a year, *if paid in advance;* 225 pages in each number.

PETER GOTT, THE CAPE COD FISHERMAN. By J. REYNOLDS, M.D. Boston: J. P. Jewett & Co. 1856. 280 pages, 12mo.

This is a plain, unpretending narrative of a fisherman's life, showing his perils and hardships. It seems to be a history of real life. Mr. Gott was a prisoner in Dartmoor prison during the war of the revolution The book is very handsomely got up.

Both these volumes are for sale by Sheldon, Lamport & Co., New-York.

NEW MUSIC.

"The Blind Orphan Boy," a ballad, by J. Wood.

"The Footsteps of Angels." Poetry by Prof. Longfellow, music by Emma Harding.

"Bird's Complaint." A song by Benjamin Jepson.

"Beyond the River," song by Jno. H. Pixley.

"Rose of Mississippi," waltz by S. Markstein.

And "The Popular Quadrilles," by James Beelock.

25 cents single. Six pieces sent by mail, free of postage, for one dollar. Horace Waters, publisher, 333 Broadway.

Among the splendid pieces recently published by Wm. Hall & Son, we notice "Rayons" and "Ombres," ballades, by Gottschalk,—one of a series under the name of "La Serenade." It is very beautiful.

GENERAL AGENCY.

WE proffer our services as General Agent to the readers of our journal, for the transaction of any business they may commit to our care. We will purchase seeds, tools, implements, plants, trees, musical instruments, etc., etc., and forward promptly. Books will be forwarded to any given address, postage paid, on the receipt of the published retail price. Schools, Sabbath-schools, etc., will be supplied with libraries. We will forward printed lists of any publisher that may be ordered, if a postage stamp is enclosed to us. Teachers also will be furnished.

PATENTS.—We especially offer our services in making drafts of machines and securing patents for any new invention.

Address. M. P. PARISH,
Office of *The Plough, the Loom, and the Anvil.*

List of Patents Issued

FROM TERMINATION OF PREVIOUS LIST TO APRIL 8.

Vincent Barnes, of Washington, improvement in railroad car brakes.

La Fayette Blair, of Bainsville, O., improved hot blast furnace.

Wm. Butler, of Little Falls, N. Y., improvement in valves for lock gates.

Wm. L. Carter, Marietta, Pa., improved ore washer.

Jno. H. Cheever, Boston, improvement in the manufacture of India rubber belting or banding.

Clinton W. Clapp, Nappinger's Falls, N. Y., improved bench clamp.

Edwin B. Clement and Silas G. Willie, Barnet, Vt., for improvement in washing machines.

Charles Davenport, Watertown, Mass., improved apparatus for heating buildings by steam.

Henry R. David, N. Y., improvement in sewing machines.

Nancy Davy, executrix of Edward Davy, deceased, late of Crediton, England, improvement in machinery for preparing hemp and flax. Patented in England Nov. 18, 1852.

Robert D. Dwyer, Richmond, Va., improved apparatus for preventing horses in carriages from falling.

R. Eickemeyer, Yonkers, improvement in parallel rulers.

Francois Garein, Philidelphia, improvement in preparation of tallow for making candles.

Peter C. Guion, Cincinnati, improvement in spark conductors for locomotive trains.

R. Gould, Whitewater, Wis., improvement in tanning.

Henry Hays, Quincy, Ill., improvement in carriage tops.

Samuel A. Kinsman and Samuel Field, Barre, Mass., improvement in machinery for ironing hats.

Israel S. Love, Beloit, Wis., improvement in harvest cutters.

Horatio N. Macomber, Lynn, Mass, improved spirit blow pipe.

Jacob. J. Mann, Westville, Ind., improvement in mowing machines.

Jno. C. Morris, Cincinnati, improved method of bending wood.

Frederick Newbury, Albany, improvement in revolving fire arms.

Henry Nycum, Uniontown, Pa., improvement in carriage hubs.

Leonard Phleger, Tamapqua, improvement in steam boilers.

Benj. T. Roney, Philadelphia, improvement in grain and grass harvesters.

Edwin P. Russell, Manlius, improvement in straw cutters.

Job Sands, Sand's Mills, N. Y., improvement in limekilns.

Richard Savery, Steubenville, Ohio, improvements in puddling iron.

Theodore Sharp, North Greenbush, improved method of straining mulley saws.

Wm. F. Shaw, Boston, improvement in apparatus for heating or cooking by gas.

Alfred E. Smith, Bronxville, improved boxes for axles.

George N. Stearns, Syracuse, mortising and boring machine.

Mathias Soverel, Orange, N. Y., improved mode of securing thills to axles.

Abraham Steers, Medina, improvement in apparatus for making extracts.

Robert L. Stevens, Hoboken, improvement in means for reducing the friction of slide valves in steam engines.

Wm. Mt. Storm, New-York, improvement in revolving fire arms.

Henry D. Stover and Jas. W. Bicknell, Boston, machine for cutting irregular forms.

Pliny Thayer, Lansingburg, improvement in harvester cutters.

John B. Thomas, Cincinnati, improved plane stock.

Erastus Tracy, Troy, improved wrench.

A. F. and C. M. H. Warren, Brooklyn, fountain pen.

Wm. Wells and Mellin Bray, Turner, Me., improved machine for cutting out and "skiving" the soles of boots and shoes, and also for cutting the "rands" therein.

Edwin Wright, Philadelphia, improved dovetailing machine.

Abner Whitley, Springfield, O., improvements in grain and grass harvesting.

Moses Woodbury, Boston, improved faucet.

Elisha Pratt, Salem, assignor through others to himself and Thos. P. Pengree, of same place, improvement in leather splitting machines.

Chas. C. Reed, Philadelphia, assignor to himself, Wm. S. Reinert, and Jacob Schnell, of same place, improvement in manufacture of umbrella ribs.

Lorenzo Stratton, Feltonville, Mass., assignor to himself and Luther Hill, Stoneham, Mass., improvement in the manufacture of boot and shoe soles.

Wm. C. Watson, New-York, assignor to Ira W. Gregory, of same place, improvement in sewing machines.

Chas. Schmidt, Union, Me., improved method of boxing carriage wheels.

Homer Anderson, of Garrattsville, N. Y., for improvement in welding steel.

Lewis C. Ashley, of Troy, N. Y., for improved bench plane.

James B. Blake, of Worcester, Mass., for improved apparatus for roasting and broiling by gas.

Samuel Blackwell, of Middlesex county, England, for improved dumb jocky, the cross and saddle tree being made out of gutta percha. Patented in England March 9, 1858.

Charles Brahomite, of New-York, N. Y., for improvement in hermetically sealing preserve cans.

John Broils, of Madison county, Ala., for improvement in hernial trusses.

Thomas D. Burrall, of Geneva, N. Y., for improvement in grain and grass harvesters.

Wm. Butler, of Little Falls, N. Y., for improvement in making chilled castings.

Thomas Cope, of Detroit, Mich., for improved carriage coupling.

Hiram Clarke, of Princeton, Mass., for improvement in thrashing machines.

Samuel Comfort, Jr.. of Morrisville, Pa., for improvement in mowing machines.

Henry N. DeGraw, of Piermont, N. Y., for improvement in machines for corking bottles.

Calvin Dodge, of Pittsburg, Pa., for improvement in fire-places.

Eliakim R. Forbush, of Buffalo, N. Y., for improvement in grain and grass harvesters.

Jacob Frick, of Philadelphia, Pa., for improvement in feed and blow-off apparatus for steam boilers.

John German and C. B. Hoyt, of Oriskany Falls, N. Y., for improvement in seeding machines.

R. Gleason, Jr., of Dorchester, Mass., for improved inkstands.

Robert Griffiths, of Alleghany City, Pa., for improved nut machine.

Horace L. Hervey, of Quincy, Ill., for improvement in harvester cutters.

A. C. Hitchcock and C. H. Amidon, of Greenfield, Mass., for improved moritising tool.

Daniel L. Hurlbut, of Utica, N. Y., for improved arrangement of rotary plaining knives.

Joshua K. Ingalls, of Brooklyn, N. Y., for improved illuminating grating.

Edward R. Kernan, of Pittsburg, Pa., for improvement in processes for making transparent window shades.

Lucius Leavenworth, of Freemansburg, N. Y., for improvement in churns.

A. Lempche, of Pleasant Mount, Pa., for improved self-regulating wind wheel.

Jno. Lippincott, of Philadelphia, Pa., for improvement in percussion projectiles.

James B. Mabury, of Jeffersonville, Ind., for improvement in stoves.

Ebeneser Mathers, of Morgantown, Va., for improved machine for felling trees.

John McCrone, of Thompsonville, Conn., for improvement in cone tubes for winding frames.

Richard McMullin, of New-Brunswick, N. J., for improvement in process for making elastic rubber cloth.

Elijah Morgan, of Morgantown, Va., for improvement in seed planters.

Geo. W. Parker, of Fitswilliam, N. H., for improved machine for making clothes pins.

Merritt Peckham, of Utica, N. Y., for improvement in sectional fire pots for stoves and furnaces.

David R. Perkenpine, of Philadelphia, Pa., for improvement in boxes of railroad car axles.

Nathan Post, of East Cleveland, O., for improvement in harness bucklirs.

James Rodgers, of New-York, N. Y., for imment in omnibus registers.

Chas. A. Schults, of Chicago, Ill., for improvement in machine for sawing marble in taper form.

Phillip Schwikardt, of Brooklyn, N. Y., for mode of producing designs on wood.

John R. Sees, of New-York, N. Y., for improvement in adjusting the brasses connecting rods.

Lambert Alexander, New-York, improvement in propelling vessels.

Gustav. A. Blitthowski and Frederick Hoffman, N, Y., improvement in needle guns.

Charles H. Key, Baltimore, Administrator of Simon F. Blunt, deceased, in detaching boats from their tackle.

Adolph and Felix Brown, New-York, machine for cutting loaf sugar.

Ambrose E. Burnside, Bristol, R. I., improvement in breech-loading fire-arms.

Abraham Coats, New-York, improvement in regulating the flow of oil to the wick in Carcel lamps.

Geo. H. Corlis and Elisha Harris, Providence, improvement in presses for punching.

Charles W. Davis, Newark, improvement in fruit or grain dryers.

Josephus Echols, Columbus, Ga., improvement in stone drilling machine.

Calvin Fletcher, Cincinnati, Ohio, improvement in paddle wheels.

John S. Gallagher, Jr., *Washington, improvement in water coolers and filters.*

Jesse Gilman, Nashua, *improved lath machine.*

Stephen J. Gold, *New-Haven, improvement in* steam radiator clocks.

Halvor Halversen, Boston, assignor *to F. R.* Slocum and Robert Watkinson, Hartford, Conn. improved miniature case.

J. H. Hoard, Providence, improved pile driver.

Wm. W. Hubbell, Philadelphia, improvement in explosive shells.

William Jenks, Alexandria, improvement in hand corn-planters.

Charles Jones, Brooklyn, improvement in ash sifters.

Konrad Keller, N. Y., improvement in fan rocking chairs.

Charles H. Lewis, Malden, Mass., improvement in spring platform for railroad cars.

N. Murphy Lowe, Boston, improved piano-forte action.

Azrel S. Lyman, New-York, improved method of cooling and ventilating rooms, etc.,

J. W. Mahan, Lexington, Ill., improved carpenter's bench.

Jos. Miller, Boston, machine for sweeping streets.

Edwin P. Monroe, Charlestown, Mass., improvement in gun locks.

Henry R. and James L. Plimpton, Hamden Co., Mass., improvement in wardrobes, bedsteads combined with other furniture.

Lucius Paige, Cavendish, Vt., improvement in the levers of railroad car brakes.

Horatio O. Perry, Buffalo, improved valve motion for oscillating engines.

Cyrus Roberts and John Cox, New-Hope, Va., improvement in grain separators.

J. B. Reyman, Salem, Ind., field fence.

James Rowe, Tampa Bay, portable field fence.

J. M. Sampson, Waynesville Ill., improved post driver.

Albert Spencer, New-York, improvement in machines for sizing hat bodies.

Solon Staples, Bath, Me., improved clamp for planking ships.

O. M. Stillman and Stephen Wilcox, Jr., Westerly, improvements in steam boilers.

Jno. Stull, Philadelphia, improvement in syringe bottles for medical agents.

Andrew J. Sweeney, Wheeling, water meter.

Wm. Thomas, New-York, improved cock for steam, water, &c.

Wm. H. Towers, Philadelphia, improvement in "creepers" to prevent slipping on ice, &c.

Wm. Warwick, Pittsburg, improvement in wrenches.

A. W. Washburn, Yazoo City, improvement in cotton seed planters.

James H. Bennett, Bennington, Vt., improved butter workers.

Samuel Beaumont, New-York, self-setting rat trap.

John A. Bailey, Detroit, improvement in machines for sawing marble in obelisk form.

Micajah Crenshaw, Springfield, Texas, improved cultivating plow.

Samuel Green, Lynn, improvement in tools for figuring morocco.

John Haselton, Goffstown, N. H., water wheel.

Isacchar A. Heald, Springfield, Mass., improvement in machines for sawing marble in obelisk form.

Philip Scrag, Washington, D. C., improved mold for earthen vessels, pots, &c.

D. H. Thompson, Fitchburg, Mass., improvement in machines for raking and loading bay.

A. W. Washburn, Yazoo City, improvement in cotton hillers.

A. W. Washburn, Yazoo City, improvement in cotton scrapers.

Abner Whitney, Springfield, O., improvement in grain and grass harvesters.

Justus Webster, Boston, and Samuel H. Folsom, Lowell, improved printing cylinder.

Thos. C. Bell, Walpole, assignor to Nathaniel Sampson, Shelburne, Mass., improvement in scythe fastening.

Jno. H. Manny, Rockford, assignor to Peter H. Watson, Washington, D. C., improvement in harvester cutters.

Henry. S. Hopkins, Providence, assignor to himself, Benj. W. Hendrick, East Greenwich, and Joseph C. Peckham, Providence, improvement in means for regulating variable cut-offs for steam engines.

Halsey D. Walcott, Pawtucket, assignor to himself and Milton B. Walcott, same place, improvement in wrenches.

Richard Hunt, Freeport, Ill., improvement in horsepower.

Nathan Ames, of Saugus, Mass., for improved self-inking stamps.

Edward J. Baker, of Baltimore, Md., for lubricator.

Ben. G. Ball, of Nashua, N. H. for improved bench vice.

Wm. F. Brooks, New-York, N. Y., for improvement in making seamless metal tubes.

John W. Brown, of Mt. Savage Iron works, Md., for improvement in rolling railway bars.

Samuel Comfort, Jr., of Morrisville, Pa., for improved apparatus for removing grains from harvesters.

Hezekiah Conant, of Hartford, Conn., for improvement in breech-loading fire-arms.

F. D. Dumpfel, of Philadelphia, Pa., for improvement in steam boilers.

Augustus Elliott, of San Francisco, Cal., for improvement in grain harvesters.

Henry English, of Baltimore, Md., for improved hydrant.

George F. Folsom, of Roxbury, Mass., for improved printing press.

Wm. Fussard, of Charlestown, Mass., for improvement in cloths for felting hat bodies and other articles.

William P. Gage, of Saratoga Springs, N. Y., for improvement in journal box for railroad car axles.

Geo. G. Griswold, of Chester, Conn., for improved method of manufacturing augers.

Jas. Harrison, Jr., of Milwaukie, Wis., for improvement in automatic steam whistles in locomotives.

Albert V. Hill, of Hinsdale, N. Y., for improvement in slide rests.

Edward Joslin, of Keene, N. H., for improved mortising machine.

George W. La Baw, of Jersey City, N. J., for improved life boat.

Vincent D. Lent, of Chelsea, Mass., for improved form for spiral springs.

Stimmel Lutz, of Philadelphia, Pa., for improvement in spark arresters.

Robert Maffett, of Bradford, Pa., for improvement in method of converting reciprocating into rotary motion.

J. W. Mahan, of Lexington, Ill., for improved mitering bench.

Thomas E. Marable, of Petersburg, Va., for improved machine for gathering seeds or grain in the field.

Philip McManus, of Brunswick, N. Y., for improvement in wrenches.

Francis Peabody, of Salem, Mass., for improved wind wheels.

Asahel Pierpont, of New-Haven, Conn., for improvement in soldering wire ferrules.

Calvin A. Richardson, of Waterloo, Me., for instrument for stirring straw and husk beds.

Wm Rodgers and Abraham Bannon, of Bellefonte, Pa., for improvement in forge fires.

John R. Lees, of New-York, N. Y., for improvemethod of varying the stroke of feeding pump for steam engines.

John Sitton, of Williamston, S. C., for improved wheelright machine.

H. C. Spalding, of New-York, N. Y., for improved lathe.

Ezra M. Stratton, of New-York, N. Y., for improvement in axle boxes for carriages.

Wm. Stephens, of Pittston, Pa., for improvement in valve gear of oscillating engines.

S. J. Tufts, of Maineville, Ohio, for improved field fence.

George W. N. Yost, of Pittsburg, Pa., for improvement in grain and grass harvesters.

Alvin Barton, of Syracuse, N. Y., assignor to himself, A. R. Morgan and J. M. Parsons, of same place, for improvement in door springs.

George W. O. Huygens, of St. Louis, Mo., assignor to himself, Chas. Benden, and D. F. Tiedemann, of same place, for improvement in bridges.

John R. Harrington, of Dayton, Ohio, for machine for making carpet lining.

Ferdinand Klein, of Newark, N. J., for improved skates.

Wooster Smith, of South Thomaston, Me., for fishing lead.

Designs.—Nicholas Muller, of New-York, N. Y. for design for clock case fronts.

Samuel H. Ransom, of Albany, N. Y., for design for six plate stoves.

Samuel H. Ransom, of Albany, N. Y., for design for parlor stoves.

Samuel H. Ransom, of Albany, N. Y., for design for stove plates.

Samuel H. Ransom, of Albany, N. Y., for design for cooking stoves.

Samuel H. Ransom, of Albany, N. Y., for design for elevated oven cooking stoves.

Stephen V. Appleby, of New-York, N. Y., for improvement in machines for drying wet grain, &c.

Aaron Arnold, of Troy, N. Y., for improvement in inclosing propeller shafts in keels.

E. B. Bigelow, of Boston, Mass., for improvement in looms.

John Plant and Chas. G. Ball, of Washington, D. C., for improvement in cooking ranges.

Edward J. Baker, of Baltimore, Md., for improved waste attachments to hydrants.

Jason Barton, of Middle Haddam, Conn., for improvement in pressure bells.

G. H. Lindner, of Hoboken, N. J., for improvement in door fasteners.

Nathan Berham, of Hartford, Conn., for improvement in fastening door knobs.

George E. Burt, of Harvard, Mass., for improved machine for combing seed off broom corn.

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Thomas Crane, of Fort Atkinson, Wis., for improvement in rotary pumps.

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Robert B. Fellows, of Shelburne Falls, Mass., for improved tempering furnace.

Geo. W. Flanders, of Lynn, Mass, for improved flood gate.

Orlando V. Florey, of Yellow Springs, O., for improved vise.

A. W. Fox, of Athens, Pa., for improved machine for planting felloes.

Wm. S. Gale, of New-York, N. Y., for improvement in piston valves for steam boiler regulators.

Wm. P. Gamble, of Philadelphia, Pa., for improvement in machines for polishing leather.

Wm. Greenleaf, of Greenfield, Ohio, improvement in carriage coupling.

Charles M. Gould and Charles B. Lamp, of Worcester, Mass., for improvement in sub-marine lanterns.

Samuel Harris, of Springfield, Mass., for improvement in machine for sifting coal and other articles.

Augustus A. Hayes, of Boston, Mass., assignor to Geo. Ashman and Charles Phelps, of Springfield, Mass., for improvement in process for extracting oil from cotton seed.

Wm. M. Henderson, of Baltimore, Md., for improved arrangement of slide valves and means for operating them.

Liveras Hall, of Charlestown, Mass., for improved machine for tapering whalebone for whip handles.

Henry W. Hunt, of Peeksville, N. Y., and John Sands, of Greenwich, Conn., for improvement in machines for mixing lime and sand for mortar.

Robert T. Knight, of Philadelphia, Pa., for improvement in the construction of envelopes.

Wm. Murer, of New-York, for improvement in locks.

Earl Parker and Wm. Reynolds, of East Hartford, Conn., for Automatic thermohydro-elaio pheumatic valve.

Andrew Patterson, of Pittsburgh, Pa., for improvement in door locks.

Sanford S. Perry, of the county of Charles City, Va., for improvement in charring wood.

H. H. Smith, of Cincinnati, O., for improved governor valve for steam engines.

P. H. Wait, of Sandy Hill, N. Y., for improvement in the felt guide of paper of machines.

Edward Whiteley, of Boston, Mass., for improvement in boilers for cooking by steam.

Anson Walcott, of East Bloomfield, N. Y., for improved method of treating surface springs.

Edwin Young, of Philadelphia, Pa., for improved slate frame.

Wm. W. Cotton, of New-York, N. Y., for machine for making envelopes.

Jacob W. Goodwin and Moses C. [illegible] of Edinborough, Pa., for improved method of regulating pumps, by wind wheels,

John D. Heaton, of Dixon, Ill., for improved arrangement of valves for hydraulic engines.

Chas. Harrison, of New-York, N. Y., for [illegible] cocks.

Jesse Lincoln, of Uniontown, Pa., for improvement in machines for sowing seed broad cast.

E. P. Lacey, of Rochester, N. Y., for improvement in corn planters.

Michael Nickermann, of *Pittsburg, Pa.*, for chuck for lathes.

Robert G. Pine, *Sing Sing, N. Y., for improved* machine for polishing *buckles*.

Martin Snow, of North Bridgewater, Mass., *for* improved spoke shave.

Edward J. Updegraff, of York, Pa., for improved machine for bending wood.

Jno. Demarest, of Mott Haven, N. Y., asignor to "The J. L. Mott Iron Works," of same place for improved core bar for pipe moulding.

Royal Hatch, of Stafford, Vt., assignor to Henry C. Hatch, of same place, for improvement in wash boards.

Julius Bevin, of Unadilla Forks, N. Y., assignor to himself and Samuel N. Stillman of same place, for improvement in boxes for axles.

R. M. Evans, of Laconia, N. H., assignor to himself and Chas. S. Gale, of same place, for improvement in railroad car brake.

Thomas Priestly, of Saxonville, Mass., assignor to Daniel Holden, of same place, for improvement in oil cans.

John Sawyer, of Fitchburgh, Mass., assignor to himself and Thomas Hale, of same place, for improved apparatus for heating and ventilating buildings.

Wm. H. Low, of Albany, N. Y., for machines for making envelopes.

John P. Sherwood, of Fort Edward, N. Y., for improvement in nail plate feeding machines.

Alva B. Taylor, of Newark, N. J., for improvement in machinery for making hat bodies.

William P. Thomas, of Hillsboro, Ind., for improvement in harness for shoeing horses.

Isaac Van Bunschoten, of New-York, N. Y., for improvement in Argand lamps for burning rosin oil.

Israel W. Ward, of Birmingham, Pa., for improved adjustment in boring machines. Antedated Feb. 16, 1856.

Hiram Wells, of Florence, Mass., for improved method of suspending circular saw spindles.

Geo. Wellman, of Lowell, Mass., for improvement in stripping top flats of carding machines. Patented in England November 25, 1858.

Liman Wight, of Benton, Pa., for improvement in spinning wheels.

James H. Wilson, Jr., of Nashville, Tenn., for safety apparatus to be applied to harnesses and thrills of vehicles.

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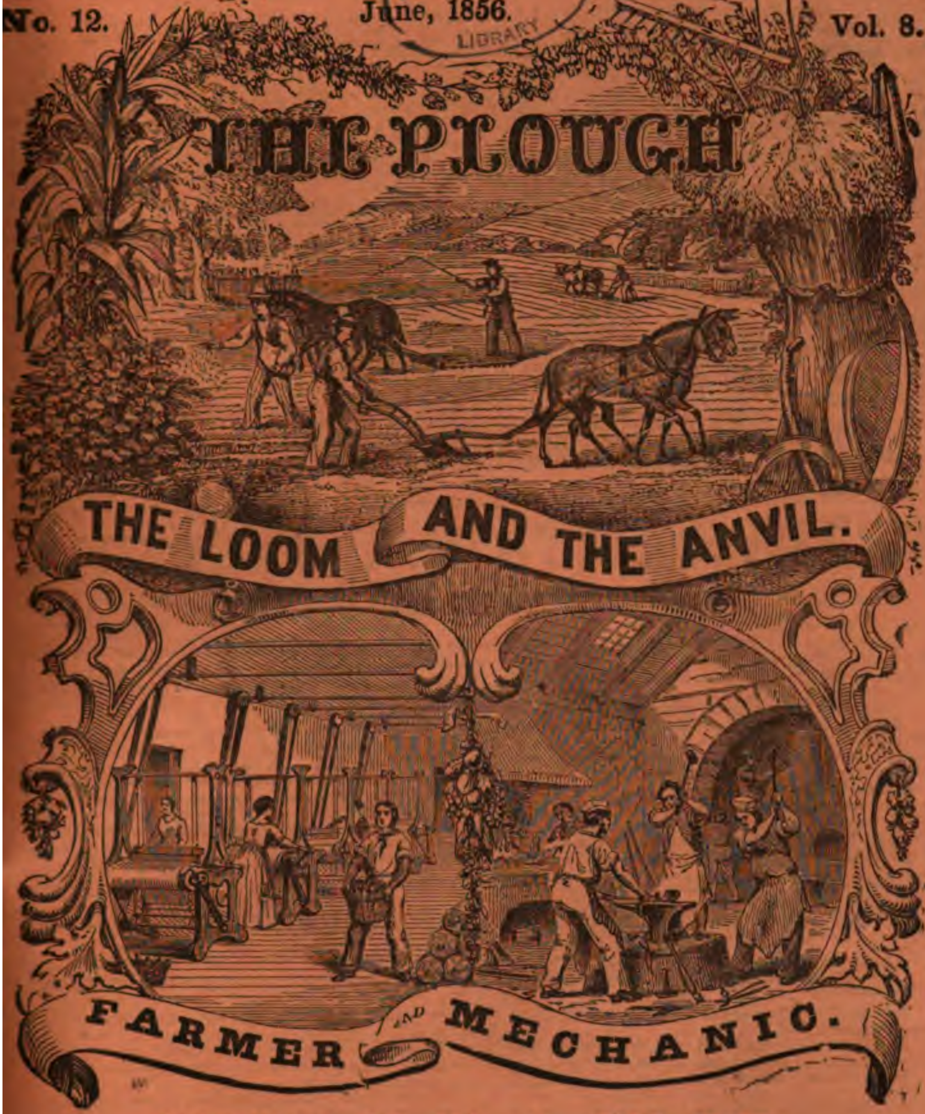

THE PLOUGH, THE LOOM AND THE ANVIL.

FARMER AND MECHANIC.

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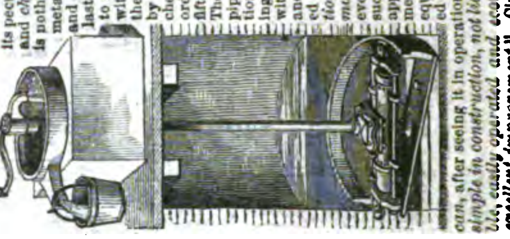
Lindsey's Double-Acting

ROTARY FORCE PUMP.



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All letters should be post paid, and addressed to M. P. PARISH, Editor, or to *The Plough, the Loom, and the Anvil*, No. 19 Nassau Bank Building, New-York.

TO ALL WHOM IT CONCERNS.

THIS number closes the 8th volume of our journal. We look back upon the past with pleasant recollections of the candor and even the kindness of our numerous readers and correspondents. Should we cease to speak to them this day, we should have occasion to remember them with unalloyed gratification. They are scattered over every State in the Union.

But, we would now treat more especially of the future. We do not anticipate any such interruption in our monthly visit to our valued friends, and we trust *they* do not purpose to terminate the connection between us. Our endeavor now is to render our labors more effective, and more acceptable both to them and to ourself. Every thing in the origin, and in the earlier as well as the later history of this journal, urges us to raise its value higher and higher, not only to the agriculturist, but to every department of productive labor.

It is AMERICAN INDUSTRY, in its broadest sense, that we would represent; the interests of which we would promote. We would foster and excite a *national sentiment* on this subject. The greatest good of all, is what we seek; and entire and complete independence of any foreign policy and foreign market, our great aim. This must be secured by advancing and promoting each separate department of honest labor.

In accomplishing this, we need, 1st, More strength in the editorial department; 2d, A still more extensive list of correspondents, and occasional contributors, scattered over the whole territory of the United States; and 3d, A STRICTLY ADVANCE PAYMENT FROM ALL OUR SUBSCRIBERS.

We do not intend to delay these improvements in our office arrangements, till we have already secured the benefit of a movement elsewhere; but, RELYING upon such increase of our facilities, we shall go forward, and we offer the following inducements to all to help us in making these improvements efficient and permanent:

The tariff of prices above given, and always familiar to our readers, shows that some receive the work at a less price than others. An individual subscription is $3.00; two copies, or two years paid for at once, $5.00, or $2.50 each; while those who are in a club of five persons pay only $2.00. We wish to equalize this, and offer to all who pay $3.00 or $2.50, and who send us another name, with $4.00, for the coming year, a credit to both in full for one year, and to continue at this rate ($2.00) so long as either pays this sum in advance or within sixty days of the commencement of the subscription year.

Any subscriber, at the club rate of $2.00, who will send us another subscriber at the same rate, shall receive, postage paid, a copy of any book he may order which is sold at retail, in this city, for fifty cents.

Who will send us the the first remittance?

M. P. PARISH,
Editor of the Plough, the Loom, and the Anvil.

The Plough, the Loom, and the Anvil.

Vol. VIII. JUNE, 1856. No. 12.

WOOL AND WOOLENS.

We invite the attention of the public to the present and prospective condition of our woolen manufactures, and the multitude of interests that are clustered around that great center. But, like one who enters a strange city, in which inviting avenues, extending in diverse directions, tempt him to wander, so we scarcely know what view we ought to present to our readers.

One of the great evils of sectional or party divisions and the ascendancy of one or other clique or clan inevitably produces, is the essential change in the meaning of words. "The country is prosperous" is made to mean anything or nothing, according to circumstances. In New-York, it means that importers are doing an extensive business, that their country customers yet hold out pretty well, and that the stocks held or represented here are rising, and whether by fraudulent representations or otherwise is of no concern. The readers of our morning papers run over the "money article," and if that speaks favorably, their anxieties are all quieted and they have no fear of anything. We found it almost impossible, recently, to convince a friend of intelligence and of extensive means who has done a large and profitable business, that the country was not in a very flourishing condition, financially, although he admitted that his own business was not producing any profit to him or to any body. He referred us to the "money article" of a sheet of this city as evidence, even against his own personal experience, and that experience intimately allied to the commerce of the country.

But how is this? What is the kind of testimony that is reliable on this point? Let us look at it. Opening our volume of post-offices and post routes, we find a very large map of the United States. The various mail routes are designated by certain lines which traverse its area in all directions. At the first glance we also notice that at short intervals small circles are drawn, which are sometimes very near each other, and not unfrequently are intersected by each other. Sometimes they are more remote. These circles are so numerous as to give a distinct character to the appearance of the sheet. No one can overlook it.

Now, suppose that each of these circles represents the existence of a raging and fatal epidemic, can that territory be called healthy? Suppose it should be understood that within those mystic circles the property of the people had been, all at once, utterly consumed by desolating fires, are these no evidence of general disaster?

If, within each one of those circles, it had been discovered that stout resistance was made, boldly and openly and defiantly, to the government of the country, would any man say, in his senses, that the civil institutions of this nation were in a very peaceful and prosperous condition?

These circles are situated, without exception, almost, among the most active, enterprising, and hopeful sections of the country. Whatever is represented, therefore, within and by those enclosed areas, deserves serious attention. Their prosperity, or their distress, must, in some form, be very sensibly felt through the country. As to the time when the public will appreciate the truth thus set forth, there may be some uncertainty. But it cannot be always ignored or forgotten.

Now, these circles may well represent the manufactures of wool and woolen goods in this country. Do our readers know, will they believe, that scarcely one, if one, of all the woolen mills in this country is, or for months has been, in operation? Do they know that this capital is *idle*, that the costly buildings erected for such use are going to decay, their operatives without employment (*or gone to Kansas to grow their own food, or avenge themselves*)—all the thousands of various trades dependent upon these establishments for their markets, deprived of the power to sell their own products? Politicians sometimes find that the evils they selfishly produce in the community come home to roost within their own private enclosures.

These manufactories are scattered over twenty-four *different States of the* Union. In number they exceed fifteen hundred. *Nearly forty thousand* operatives are thus thrown out of employment, and scarcely less than eighty or a hundred thousand more of parents, women, children, &c., by the same means, are deprived of the sources whence they have solely derived their support.

All this while foreigners are establishing themselves in our counting-houses, importing foreign goods, and sometimes, under fraudulent invoices, cheating THE PEOPLE out of a large portion of the trifling duties the law demands from them, while in our cities avenues are built up with gorgeous palaces, and princely fortunes are amassed—all for love of liberty and free trade! and the people love to have it so!! and our hardware importers, who would control and pervert all the business of the country for their own benefit, more fortunate than Judas of old, find among those born and reared under our own institutions, and with whom they may be delighted to associate, both sympathizing hearts and helping hands.

But we must stay our zeal. We have as little personal interest in this matter as most of our readers, and if the people assent to this suicidal course, the results should be met submissively.

We must content ourself now by giving to our readers the following able and lucid presentation of this subject, by one of the best minds in the country, and one who has been for a very long period personally connected with it, and is practically familiar with the facts and the workings of the policy which has prevailed.

Mr. Jarvis, while Consul in Spain, was personally concerned in the first introduction of Merino sheep into this country, has been from that time to the present among the most extensive owners of these sheep, and is abundantly able to speak, as with authority, in relation to it. Would that he, and such as he, had the control of this interest, shaping its policy in accordance with the demands of honest truth and the public weal. This letter of Mr. Jarvis first appeared in one of our city papers. ED. P. L. & A.

WOOLS AND WOOLENS.

DEAR SIR:—I was happy to receive a letter from you upon a subject which I have had so much at heart for over fifty years.

After being in Portugal, Spain, and in England, between the years 1798 and 1802, that which most astonished me in the two first countries was the great neglect of agricultural, mechanical, manufacturing, and commercial industry, and the general poverty which prevaded the mass of the people in a country possessing an excellent soil and one of the finest climates in the world; whereas, on going to England, I found everybody busy, the land highly cultivated, all branches of mechanical and manufacturing industry in the greatest activity—that nation then possessing the largest commercial marine in the world, and her ports crowded with shipping.

When I compared this state of prosperity and affluence with the state in which English history represented her to be five hundred years before, without manufactures and without commerce, dependent on the Brabant shipping to carry her surplus wool and other productions to Flanders, and sending it back to England in cloths, to their great benefit and impoverishment of England, the contrast was so great that I could hardly give credit to her own historians, as to the truth of what they asserted. But an examination into her commercial history satisfied me of the fact. England was then as dependent on Flanders for the few manufacturing comforts which she obtained, as the Brazils and Spanish South America have been upon their mother countries, for the European goods which they received through those respective channels. But the teachings of history appear to have produced very little effect upon us. We are now voluntarily pursuing the same policy toward England, which five hundred years ago she pursued toward the Flemings, and with the same result. With our variety of climate and virgin soil, by this injudicious policy, we have got into debt to Great Britain to the amount of some two hundred and fifty or three hundred millions of dollars, with outgoings against us of fifteen to eighteen millions of dollars a year in the shape of interest. By way of economizing our resources, so as to enable us to pay off the principal—for pay-day must come—we have recently more than doubled the imports of those woolen manufactures which we could have made at home. A new way to pay old debts!

In relation to wool, I have from the outset been opposed to any, or at least a heavy duty on this article; but I am compelled to acknowledge that the most serious opposition I have met with on this point has been from my brother wool-growers. They seem to think that a low or no duty will cause this country to be flooded with foreign wool.

With the low price of our lands and the moderate expense of sheep husbandry compared with any other agricultural pursuit, I have never felt any fear that the American wool-grower would be injured by importation. My doubt of success originated in the want of due protection for our manufacturing industry. Manufacturing labor in England did not and does not cost half what it does in the United States; their machinery of every kind has been brought to the greatest perfection; their skill in using it has also been perfected, and the average interest of their capital is not more than half ours, and hence the danger to our success must originate in this source. Once place our manufacturers in a condition not to be prostrated by the competition of those of England, and they would afford a ready and remunerating market to the wool-growers. Now it must be obvious in this immense, extended country, more than half of it adapted to the wool-growing business, where land can be bought for less than the price of the annual rental in England, and most of other countries in Europe, we cannot be in any serious danger from the competition of foreign wools. It might as well be urged that we should lay a duty on foreign raw cotton, for fear of competing with that of our own growth. To lay a high duty on wool, and neglect to lay a a duty on foreign manufactures, which would protect our own from rivalry, would be literally realizing the fable of killing the goose which laid us the golden eggs. Everybody knows, who is acquainted with the subject, that the labor of the operatives, the cost of the dye-stuffs, the expense of the wear and tear of machinery and buildings, and the interest on capital, constitute two-thirds of the value of most woolen fabrics; then to lay a higher duty on the raw material than we do on the manufactured article would be directly legislating for the good of the foreigner to our own disadvantage. It might do very well for the legislation of a Colonial Parliament; but for an independent nation which means to emancipate herself from the leading-strings of her former mother country, it is suicidal.

There certainly has been a great deal more stress laid on this subject of foreign wool than it was entitled to. Had Congress favored us with a steady legislation calculated to promote manufacturing industry since 1816—when the double duties ended by the limitation of the act—there would not at this time be any question upon the propriety or impropriety of a *duty on foreign* wool; for we ourselves should have raised amply enough *for the supply of* our own consumption. We have done it in cotton and *everything else we* have turned our attention to, and we should have done it in *sheep—whose* fleece affords us our most comfortable clothing, and his carcase our most wholesome food—had proper encouragement been afforded to this useful branch of industry. From the variety of views which have been entertained in Congress in regard to a protective duty, it is pretty certain the friends of manufacturing industry, cannot obtain what they want, and, for one, what I say they ought to have. Mr. Guthrie appears to be a man of sense, and he has probably recommended the only course of legislation which can now be carried into effect for the benefit of both manufacturers and wool-growers. As a general rule, when manufacturing industry is to be promoted, which comes in competition with foreign, it appears to me obvious that the raw material—dye-stuffs and drugs—which are employed in forming the fabric, must be obtained at as low prices as the foreign manufacturers obtain them, so as to enable home goods to be thrown into the market as low, or lower, than foreign. But if a duty is laid here on the raw wool and drugs and dye-stuff necessary to perfect the fabric, and no duties are laid on those articles in foreign countries whence we derive our supplies, it is clear that the value of the goods made here must be enhanced to the amount of the duties so laid; and if a proportional duty is not laid on the foreign manufactures which come in competition with ours, the American goods must go into the market at a higher cost than do the foreign, and their sale be prevented; and thus, instead of Congress legislating to encourage our own industry, it will be legislating practically to promote the industry of foreign nations to our injury.

This opinion I give as a party directly interested, being one of the largest holders of fine wool sheep in the United States.

But in a government of the people, formed by themselves for their own benefit, we cannot suppose that any tariff can be made by their Representatives which shall altogether neglect or overlook the interests of the people, and, of course the industrial interests of the country will receive that attention which their importance imperatively demands. Among other subjects which require attention is the rigid enforcement of our Revenue laws. Such rules and regulations ought to be introduced as will secure the collection of our lawful revenue. Legal proof has been given that great frauds have been practised in our Custom House at New-York, to the great loss of the revenue and to the injury of our manufacturing industry, by enabling the foreign agent to undersell our own fabrics in our own markets. To prevent this evil, stringent measures ought to be rigidly enforced. As we have no Botany Bay, and hanging is out of fashion, the goods, wares, and merchandise attempted to be fraudently introduced, ought to be confiscated, and the culprit and his abettors ought to be condemned, at least, to ten years in the State Prison. With respect and esteem, Wm. Jarvis.

TOBACCO STATISTICS.

We give place in our columns this morning to an interesting and valuable report which was yesterday transmitted to Congress from the Statistical Office, in the State Department, in pursuance of a resolution offered by Mr. Faulkner, of Virginia, in the House of Representatives on the 17th inst.

Not the least interesting feature in this Report is the evidence it exhibits of the utility and public advantage of such a bureau as that from which it has emanated, as well as of the promptness with which such information can be supplied to Congress and the country.

The document itself contains valuable information, presented in a compendious form and well classified arrangement:

Statement " respecting the Tariff Duties, Restrictions, Prohibitions, and Custom-House Regulations, applicable to American Tobacco in the Principle Commercial Countries of Europe."

Bremen levies a tariff duty of $\frac{2}{3}$ of 1 per cent. Import duty is levied at the rate given on the invoice value, with the addition of freight and insurance charges. All foreign vessels (Americans excepted) must be entered at this port by a licensed ship-broker, the exemption in favor of American vessels having been conceded by the Bremen Senate in 1852.

Great Britain levies a duty of 72c. per lb., and 5 per cent. additional. Tobacco, snuff and cigars are prohibited to be imported into Great Britain, unless in vessels of not less than 120 tons burden, and into ports approved by the Commissioners of Customs. These ports are London, Liverpool, Bristol, Hull, Lancaster, Cowes, Falmouth, Whitehaven, Plymouth, New Castle, Southampton, Preston and Swansea, in England; Aberdeen, Leith, and Greenock, in Scotland; and Dublin, Belfast, Galway, Limerick, Londonderry, Newry, Sligo, Waterford, Wexford and Drogheda, in Ireland. Duties alike from all countries and in all bottoms.

France—Tobacco a Government monopoly. By the terms of the treaty of June 24, 1822, American produce, if imported direct to France, in United States bottoms, is admitted on the payment of the same duties as apply to similar importations, in other countries out of Europe, in French vessels. The origin of the merchandise must, however, be duly authenticated and certified by the collector at the port of exportation and by the French Consul. American tobacco is purchased by the Commissioners of the Regie for the Government factories, and is admitted either in French or American vessels free of duty. In foreign vessels the duty is $1 86 per 100 kilogrammes, (221 lbs.) The monopoly was established in 1810 by Imperial decree.

Holland levies a duty of 28c. per 221 lbs. If imported direct from the

United States, admitted on the same terms, whether in American or national vessels.

Spain—Tobacco is a Government monopoly. Admitted at the port of Malaga in American vessels, at a duty of 20c., and in Spanish at a duty of 15c. per lb. The privilege of the tobacco monopoly in Spain is rented to individuals, and yields a revenue of about $4,000,000 per annum.

Belgium levies a duty of $1 86 per 221 lbs. In the direct trade between the United States and Belgium the vessels of both nations are equalized by treaty. In the indirect or triangular trade there are discriminations, though frequently appended by Belgium.

Sardinia—a Government monopoly. The annual revenue cannot be calculated as the Italian States are grouped in official returns of commerce.

Austria—a Government monopoly. When imported by permission of the Government the duty is $4 85 per 110 lbs., besides 97c. per lb. *for a* license to import.

Sweden levies a duty of 5 5-6 per lb. The duty is *over 100 per cent.,* and importations from the United States are diminishing *annually.*

Norway levies a duty of 4½c. per lb. Owing to a *difference in the weights* and measures in use in Norway, the duty is about *33-3 per cent. less than* in Sweden.

Portugal—a Government monopoly. The raw article, for the *factories of* the Government, is derived chiefly from Brazil, about half a million lbs. per annum being received from the United States.

Statement exhibiting the quantities of American Tobacco exported from the United States into the countries designated, with the amounts of duties paid thereon during the commercial year 1855:

COUNTRIES.	QUANTITIES.	DUTIES PAID.
	Pounds.	
Bremen..............	38,058,000	$16,652.
Great Britain........	24,203,000	$18,297,468.
France.............	40,866,000	Average annual revenue from monopoly $16,000,000.
Holland...........	17,124,000	$21,695,000.
Spain..............	7,524,000	Average annual revenue from monopoly $4,000,000.
Belgium............	4,010,000	$33,749.
Sardinia...........	3,311,000	No data from which to ascertain amount of revenue derived from monopoly.
Austria.............	2,945,000	$129,805, besides an annual profit to the Regie of about $7,500,000.
Sweden & Norway...	1,713,000	$88,505.
Portugal............	336,000	No data from which to ascertain the share of the monopoly revenue which this quantity bears; the whole amount is about $2,250,000.

Note.—The total receipts from custom duties in France for one year (1848), according to official returns, were 146,000,000 francs, of which 86,000,000 were derived from tobacco, nearly all grown in the United States.

The Austrian Empire contains 36,514,397 inhabitants. The annual yield (average) of tobacco in Austria is estimated at 79,000,000 pounds. The only places where the plant is permitted to be grown are Hungary, Galicia, the Tyrol and Venice. In Hungary it is the leading staple, the annual crop reaching as high as 68,000,000 pounds. Of this one-third is sold to the Austrian Regie, one-third to foreign countries, and the remaining one-third is consumed at home. The average annual importation from the United States is from two and a half to three million pounds. The Regie clears a profit of ten cents on each pound of raw tobacco, and the annual revenue to the Government is $7,500,000.

In the States composing the Zollverein the annual crop of tobacco is estimated at 55,000,000 pounds. The revenue derived from American tobacco is about $1,800,000 per annum.

Belgium produces annually about 1,300,000 pounds of tobacco, and imports from 9,000,000 to 11,000,000 pounds.

Holland produces from 4,000,000 to 5,000,000 pounds, and imports annually from 30,000,000 to 35,000,000 pounds. The tobacco factories in this country are stated to give employment to "one million operatives."

Bremen imports annually from 35,000,000. to 50,000,000 pounds of tobacco, most of which is manufactured in that city and re-exported to foreign markets.

Hamburg imports only from 1,000,000 to 2,000,000 pounds annually, most of which, after being manufactured, is re-exported.

The annual tobacco crop of Russia is about 25,000,000 pounds.

The annual consumption of tobacco in Spain is about 9,000,000 pounds, one-third of which is imported for the Government factories from the United States.

In Portugal the culture of tobacco is prohibited by law.

The quantity of American unmanufactured tobacco annually imported into the principal commercial countries of Europe may be thus stated: For each inhabitant of Great Britain 14 ounces; for each inhabitant of France 10 ounces; for each inhabitant of Belgium 2¼ pounds; for each inhabitant of Holland 2¾ pounds; for each inhabitant of the Hanse Towns 5 pounds; for each inhabitant of Hanover 3½ pounds; for each inhabitant of Mecklenburg-Schwerin and Mecklenburg-Strelitz 2 pounds; for each inhabitant of the States of the Zoliverein 1 pound; for each inhabitant of Russia ¼ ounce; for each inhabitant of Austria 1 ounce; for each inhabitant of Spain 3 ounces; and for each inhabitant of Portugal 1½ ounce. The aggregate quantity of tobacco annually raised in these countries (exclusive of their colonies) is about 210,000,000 pounds. The aggregate quantity of tobacco raised in the United States in 1850 was 199,752,515 pounds.*

The average annual quantity of American tobacco imported into Great Britain during a period of three years (1851–'52–'53) was 24,543,334 pounds, on which there was levied an average annual duty of $18,554,760. The average annual quantity imported into France during the same period was 14,690,000 pounds; into Holland 18,660,000 pounds, on which the average annual amount of duty was $24,915; into Belgium 4,824,000, on which the average annual amount of duty was $40,600; and into the Hanse Towns 38,637,667 pounds, on which was paid an average annual amount of $12,648 91.—*National Intelligencer.*

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* Census of 1850.

The Stars and Stripes.—A correspondent of the N. Y. *Courier and Enquirer* calls attention to the fact that our National Flag is made of foreign bunting; the flags of the capitols of the United States, of the arsenals, forts, ships-of war, of peace, army, taverns, even those of the Native American meetings, all are of foreign manufacture, and should a war come, if the flag did not rise in victory, it would in price.

METEOROLOGICAL.

THE WINTER SEASON IN INDIANA CO., PA.

NEWMAN'S-MILLS, INDIANA CO., PA., April 28, 1856.

MR. M. P. PARISH:

VERY DEAR SIR:—The last winter, like the past summer, has been a very remarkable one here, as well as elsewhere. It set in fairly and squarely just about Christmas, and from that time on it snowed, and blowed, and froze, and snowed, and blowed, and froze, and snowed, and blowed, and froze, for about six or seven weeks before it showed any signs or disposition to relax its awful grasp. One would suppose that it would make the very jaws of winter itself ache, holding on so long. It relaxed a little, and but a little. The first part of March, and in fact on till about the 20th, it was rough and tumble. The lion seemed to shake his mane most terribly. The snow was so deep and dry and drifted that it was almost impossible to get about. I suppose that it must have cost the people here more than twice as much to get their timber for rafts hauled to the river as it does usually. About the 20th of March we had a few soft and pleasant days, which settled the snow some; then it set in again and the old lion shook his tail as smartly as he had done his mane. After he had shaken himself to apparent satisfaction, he became more quiet, and seemed to rest a bit. The snow is now nearly all gone—just a little left to see how it looks. The streams have been very high and much longer than usual, though there has not been much rain. The men folks are nearly all away down the Susquehanna with their lumber, on their way to market, and till they return, if they do so, all the women are widows, or afraid they may turn up to be. The last fall was so wet that not much winter grain was sowed, but what was sowed looks very well, after being covered so deeply with its white robe for so long a time, nearly four months, except where it was covered with deep or high drifts; there it seems to look as though it had been a little too long under cover; had opened its eyes upon the waking world a little too late in the day for its own highest good. I hear much complaint among my neighbors in regard to their potatoes being frozen to death, so also in regard to their plum and peach trees. Well, such being the sober fact, I reckon the late frosts, if we should be unlucky enough to have any, won't kill the blossoms on the peach trees, and as for the plums, why the curculio may sting away at them to their heart's content without molestation, or Mr. Matthew's or any body else's infallible remedy to put them out of the way. During the past few days it has been quite warm, and the apple trees begin to show, or try to, that they have stood the westers better than their neighbors the plums and peaches. I hope Messrs. Apples will be able to bring forth abundantly their luscious fruits to perfection, to bless man and beast. Give me the fruits and the vegetables good in quantity and quality, and you, Mr. Editor, or any body else that wants them, can have the flesh-pots and all their contents. Away with flesh-pots and their contents, and let men, and women, and children, made in the image of God, live like men, women, and children, upon the health-giving, health-preserving, and health-restoring fruits and vegetables, as they come from the lap of old mother earth, and not like hienas, wolves or cannibals upon their less-intelligent fellow-creatures. Away with your flesh-pots, there is disease and death in them, and no prophet to salt them out.

The tornado that passed through here on the evening of the 12th inst., did much damage. It came very suddenly, very powerfully, and was gone, but very ruin seemed to mark its path, and to so mark it, that it will stay marked awhile I guess. On last Monday and Tuesday, the 21st and 22d, we had quite a fall of snow, which robed the ground for three or four days. Since it disappeared the weather up to this time, has been very pleasant and spring-like, and so may it continue. May our Heavenly Father bless us all with plenty, health, peace, and happiness.

Yours truly, D. M.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

FOREST TREES OF NICHOLS, TIOGA CO., N.Y., AND THEIR USES.

PINUS RESINOSA.—RED PINE OR NORWAY PINE.

Of the Norway pine I know but little, having seen only five or six trees, growing with white pine and hemlock on a hill-side near one corner of my farm. These are the only ones of that species in this vicinity. Trees from seventy to ninety or more feet high, and from eighteen to twenty-four inches in diameter, very straight and smooth, and tapering but little, from the ground up sixty feet; limbs few and scattering and near the top. The bark is of a brighter red than any other species of pine, and quite smooth, more so than any other; wood of a reddish color, and very full of pitch; it is hard and durable. Dr. Torrey says the leaves are in pairs, shorter than the cones, five or six inches long, of a dark green color. Again he says, Leaves shorter than the cones, and cones, he says, about two inches long—a mistake somewhere. As far as I have ascertained, the cones are two inches long and sharp pointed, nearly the shape of an egg. Scales dilated in the middle, unarmed, that is without spines. Dr. Torrey in his valuable Botany says the timber is used for decks and masts for vessels.

PINUS RIGIDA—PITCH PINE.

The pitch pine is found in this town in almost all situations, generally on the sides of hills and tops of high hills, and very frequently on diluvial formations along streams, where it is called pine plain land. It is from thirty-five to fifty feet high—generally about forty-five feet, and from twelve to twenty inches in diameter, with numerous branches, often extending nearly down to the ground; frequently a low, bushy, rough tree, with a thick, dark-colored, rough bark. Leaves in threes generally, and about three inches long, being very short and stiff; cones, egg-shaped, and about two inches long, frequently the end coming to a sharp point, in clusters of threes and fours, the scales terminating in a short, acute, reflexed point.

The pitch pine is of but little value except for firewood, it being full of pitch, and trees under one foot in diameter are nearly all sap, or white in color, the middle or sound heart being of a reddish color. In consequence of the large amount of sap-wood, the stumps, in a few years, rot when out of the ground. Flowers in May; fruit in September.

PINUS MITIS—YELLOW PINE.

There are but a few of the yellow pine left in this town. They were never very abundant, and are only found on hills. The trees are from seventy to ninety feet high, and from eighteen to twenty-four inches in diameter, with a regular pyramidal head; bark quite smooth and light colored. It is often a beautiful tree. Leaves elongated, slender, usually in pairs, but often in threes, channeled, the sheaths two and a half to five inches long, dark green, cones small, scales slightly prominent, with a small slender mucre pointing outward, and about two inches long, the prickel at the extremity of the scale very slender.—(Torrey.) The timber of the yellow pine is very valuable, being stiff and solid, and working smooth; it is used for floor-boards, bedsteads, oxyokes, etc. The yellow pine, like similar species, has very thick sap-wood, and its knots are full of pitch, and as hard as a bone. The knots are often found after the tree has decayed partly buried in the ground, and they will in all probability last for hundreds of years. The stump and roots remaining under ground have often been collected and burned for the procuring of tar. ROBERT HOWELL.

NICHOLS, May 13, 1856.

RAILROADS OF NEW-YORK.

THE subjoined statistics are compiled from the reports of the several Railroad Companies of this State for the last year, made to the Railroad Commissioners:

STATISTICS OF TWENTY-EIGHT RAILROADS.

Length of 28 roads in miles	2,398
Number of passengers carried during the year	9,628,983
Average number per day	26.386
Number of miles traveled by all passengers	447,747,789
Average number of miles traveled by each passenger	46½
Number of miles run by locomotives	11,563,816
Passengers killed (1 in 1,203,624)	8
" injured (1 in 385,159)	35
Number of locomotives owned by 28 Companies	695
Number of Passenger cars owned by 28 Companies,	817
Number of Freight, Baggage and Platform do.	9,309
Number of tons freight transported during the year,	3,347,239
Number of Bridges	1,067
Length of Bridges in miles	32
Tons coal used	5,335
Cords wood used	811,567
Gallons oil used	247,963
Earnings for the year	$19,040,986

FIRE REGULATOR FOR STEAM BOILERS. By Wm. S. Gale, of New-York City.—This improvement relates to a method of regulating the draft damper of steam boilers, so as to increase or diminish the fire according to the pressure of the steam. When the pressure exceeds a given weight the apparatus shuts the damper and slacks down the fire; and when there is not steam enough the damper is opened so as to quicken the fire.

STATISTICS OF LONDON.

London covers at present a space of 122 square miles. It contains 327,391 houses, and 2,362,236 inhabitants, the annual increase of the population being upwards of 40,000. The length of all the different streets is 1750 miles. The paving of them cost £14,000,000, and the yearly cost of keeping the pavements in repair is £1,800,000. London has now 1900 miles of gas pipes, and the same length of water pipes. The introduction of gas cost £3,000,000.

There are 360,000 burners in the city, which consume every night 13,000,000 cubic feet of gas, valued at £500,000, or two millions and a half of dollars. The bankers of London have under their control a capital of £64,000,000, and the different Insurance Companies have a cash capital of £10,000,000, and £78,000,000 in negotiable paper.

The tax on houses amounts yearly to £12,500,000. The furniture of these houses is insured to the amount of £166,000,000. Twenty thousand persons are constantly employed in keeping the docks in repair.

London consumes yearly 277,000 oxen, 300,000 calves, 1,480,000 sheep, and 34,000 hogs, worth, all together, £8,000,000. London consumes every year 1,600,000 quarters of wheat, 65,000 pipes of wine, 2,000,000 gallons of brandy, 43,200,000 gallons of porter and ale, 19,215,000 gallons of water, and 3,000,000 tons of coal. It has 350 charity associations, which distribute every year £1,805,635 to the poor, which sum when increased by private charities will amount to £3,000,000. The city, from the showing of its official documents, has 143,064 persons who have no visible means of support. Among these are 4,000 vagabonds, who cost the city £50,000 a year to support them. There are besides in London 110 professional housebreakers, 107 street thieves, 40 robbers, 783 pickpockets, 3675 ordinary thieves, 11 horse thieves, 140 dog thieves, 3 forgers, 28 counterfeiters, and 317 individuals who live directly by the profits of this illicit trade, 141 swindlers, 182 people who speculate on charity with false documents, 353 receivers of stolen goods, &c., &c.; in all 162,000 criminals who are known to the police, and who steal every year to the amount of £42,000.—*Evening Post.*

THE ANGORA GOAT.

At a recent meeting of the Farmers' Club, in this city, the Secretary read some interesting translated extracts from the "Bulletin Manuel de la Société Imperiale Zoologique D'Acclimation," Paris, 1856, as follows:

I went to Cheragas to examine the flock of Angora goats confided to the care of one of our oldest and most able colonists. We found twelve females and one buck. The buck, and ten of the she-goats are of the perfectly pure race, their long silky fleeces undulating, entirely white, shone brilliantly in the sunshine. Two of them had their fleeces as white as the rest, but much shorter and less silky. They seemed to have come from a mixture of breeds.

The flock is in a very satisfactory condition. They are lively, alert, and in very good health, but rather too plump for the race of goats. However it is easy to see that in exterior they, to a certain degree, resemble sheep. They graze all day, sometimes in the plain, sometimes among brushwood, in company with a number of she-goats from this country and some from Malta. At night each Angora goat sleeps in a little separate stable for itself, on abundance of well-kept litter.

Their fleeces are usually neat, but in their rambles they are apt to encounter hooks from some leguminous plants, catterpillars, so that some of the fleece are torn off in getting them out. These are injurious to the fleece. These Angora goats are very rustic, they are less delicate and less susceptible in regard to their nourishment than goats of any other sort. They crop grass and browse on bushes of all sorts, eat leaves of the mastic, of climbing plants, filarias, olives, &c.

The reproductiveness of this little flock is not less satisfactory. Desiring to know the result of mixing breeds, I had two fine Maltese goats led to the Angora buck. I think the favorable season for shearing is towards the end of April, as with our sheep, pretty nearly.

The other extracts had reference to the eduction (taming) of partridges, to the domestication of the ostrich in Algeria, and various other curious matters.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

WATER A FERTILIZER.

Mr. Editor:—I send you below an extract from my "Notes of Lectures on Agricultural Chemistry," which, though written some years ago, may prove suggestive to some of your former readers.

Perhaps every one of you, living as most of you do, in this rolling limestone country, has observed how rapidly land may be improved by being cultivated for a few years as watered meadow. This mode of fertility has often been attributed solely to the organic matter carried down, and spread over the soil by the water, with the increased growth of roots, and the accumulation of rotted grass left by the watered crop. It is true in many cases, that valuable organic matter is thus either produced in the soil, or transported by the running water from one place to another, and rendered an available source of fertility; but there is another part performed by this water, which should not be left out of view.

As water percolates the strata of the earth, it dissolves and carries out a variety of mineral substances which are useful to almost all soils that have been long under cultivation. Among these are the carbonates, sulphates and chlorides of lime, potassa and soda. The elements contained in these are nearly all essential in some form or other to the fertility of a soil. An excess, too, of any fertilizer, above what may seem sufficient to meet the immediate wants of the growing crop, is generally desirable, so that all the rootlets, which spread themselves through the soil in search of nourishment, may be able readily to find a supply.

Waters in lime-stone regions are generally charged abundantly with carbonate of lime in solution; and also contain more or less of valuable sulphates and chlorides. Phosporic acid, too, in some form of combination, is found in small quantities in many of these waters. Running water, besides these valuable ingredients, often contains silica in a soluble form. For grass and the stocks of grain this is a most important element of nutrition.

From analyses of a variety of waters, from different parts of this State, I have come to the conclusion that there are few springs to be found, which do not hold in solution, salts which would be valuable, if applied to almost any soil. The water of some springs may contain matter injurious to soils. Such would be the case with a water containing proto-sulphate of Iron in considerable quantity. But such springs are rare.

The benefit then, arising from watering meadows, is not to be attributed solely to the supply of moisture thus furnished to the roots of the grass. This moisture carries with it valuable nourishment—food as well as drink—and thus performs a secondary office of no inconsiderable importance.

Fields contiguous to streams may have water conveyed to them in ditches, and spread over a large proportion of their surface. The water thus having a broad surface exposed to the influence of the sun and air, is rapidly evaporated; but the mineral matter held in solution, being involatile, is left behind to enrich the soil. If the water is supplied in quantities just sufficient to spread over the whole surface, yet so as to be entirely taken up by absorption and evaporation, the mineral matter contained in it will all be communicated to the soil and the growing crop. Then whatever portions are not appropriated at once will be left for future use. Thus we see how water may in many cases be made a valuable source of fertility.

The cost of watering would frequently be less in proportion to the benefit derived, than would be the application of the same quantity and quality of fertilizers in any other way. The summer season is most favorable to this kind of irrigation, as evaporation then goes on most rapidly, causing the most abundant precipitation of mineral residuum. J. L. CAMPBELL.

WASHINGTON COLLEGE, Va., April, 1856.

INSECTS INJURIOUS TO VEGETATION.

LEPIDOPTERA.

THROUGH the action of some sprite, not over-truthful, our readers were led to regard the account of this general division of our subject as "concluded" in our last issue; but we are not at liberty to dismiss so important a matter quite so hastily. We have been compelled to omit even the names of many insects injurious to our forest trees, chiefly confining ourselves to those which were destructive to the vegetation found in our orchards and gardens, and around our houses. A more thorough course would fill a volume. And though we have been long occupied in this meagre sketch, on a very limited plan, we are yet far from the end of our task. More space must still be occupied by that very important order "Lepidoptera."

The moths thus far described devour the leaves of plants, and are of course more or less exposed to view; but some are concealed in roots and in stems, devouring the wood and pith, like the Aegerians among the Sphinges. The Locust tree is peculiarly subject to the attack of some of these, one is a small reddish catterpillar, perhaps belonging to the Aegerians, or the Bombices; a larger insect, which is a grub, is the *Clytus Pictus*, already described among the beetles. A third is still larger, is a true catterpillar, reddish above and white beneath, two and a half inches or more in length, and nearly as large as the end of the little finger. It bores into the tree obliquely, lines the passage with a web, spins a cocoon around itself, and thus assumes the chrysalis form. It comes out, after transformation, a winged moth of a gray color, fore-wings thickly covered with dusky lines and irregular spots, the shoulder-covers edged with black on the inside. It expands about three inches. It was named by Professor Peck, *Cossus Robiniæ*, and by Mr. Newman it is called the *Xyleutes*, or the *Carpenter*. It is the *Bomby* and *Cossus* of Europe. The moth comes forth about the middle of July. The male is much darker than the female, and has a large oker-yellow spot on the hind-wings, near the posterior margin. These moths give out a *peculiar* smell and hence are called *goat-moths* by some European writers.

Notodontæ.—These insects infest various kind of fruit trees, toward the end of summer, and also our rose-bushes and hedges. At the South, they are said to breed twice a year, the first brood appearing in May or early in June. The young catterpillars are yellowish brown, paler on the *sides, and are* striped longitudinally with slender black lines. On *the fourth ring* is a hump. Along the back are several short black prickles. *The head is red. The* hinder extremity tapers, and is always elevated when the insect is not *crawling.* When full grown they measure an inch and a quarter or more in length. Sometimes they entirely cover the small twigs and the ends of branches. The early broods leave the trees by the middle of August, all of the same brood descending at the same time. They disappear in the night, concealing themselves under leaves or in the earth.

Another kind of insect, highly injurious to apple or other fruit trees, late in summer, belongs to the genius *Pygæra.* The head is large and black, body cylindrical with a spot on the tip of the first ring, legs dull orange-yellow, back traversed by a black stripe, and the sides striped with black and yellow. When at rest both extremities are raised, the body being bent and resting on the four intermediate pair of legs.

They begin at the ends of the branches, eating all the leaves as they advance toward the trunk. They all quit the tree at the same time, by night, descending into the earth three or four inches, and become chrysalids without making cocoons. The moths come out in July. They expand two inches or more; are of a light brown color, the head and a large square spot on the thorax dark chesnut-brown. On the fore-wings are four or five transverse lines. Near the middle of them are one or two spots, and near the tip is a short oblique line.

Noctuæ ; Owlet Moths.—These form the second tribe, and are named from their habit of flying, chiefly by night. They frequent the maple, elm, chestnut, &c., is greenish-yellow above, head, tail, belly and feet black, body covered with long and soft yellow hairs. On the fourth and sixth rings are tufts of black hairs and a pencil on the eleventh. It forms its cocoon in the chinks of the bark, on fences, &c.

Nonagriadæ ; Nonagrians.—These catterpillars are naked, smooth, long, slender, tapering at each extremity, of a reddish or greenish tint, with an oval, dark-colored, horny spot on the first and last rings. One of these Nonagrians is known as the Spindle-Worm. It often devours the spindle of the Indian corn. The leaves wither, and may be easily separated from the stalk. A small hole may be found in the side of the stalk, near the ground, penetrating to its center, which is perforated upwards and downwards, by this caterpillar. It grows to an inch or more in length, and to the thickness of a goose-quill. It is smooth, roundish, naked, yellowish, the head and the tip of the first and last rings black. It also attacks the Dahlia. The chrysalis is slender, of a mahogany-brown color, the anterior edges of four of its rings roughened with little rings and four short spines or hooks, turned upwards, on the hinder extremity of the body. The fore-wings are rusty red, mottled with gray; with a spot near the tips, with a few black dots near the veins; hind-wings yellowish-gray, and a spot near the center, with two feint dusky bands behind. The head and thorax rusty-red, with an elevated tawney tuft in each. Abdomen pale-brown, and a row of tufts on the back. The wings expand one and a half inches.

These insects, as soon as their presence is made known, by the withering of the leaves, should be sought for and destroyed, while in the catterpillar state, before they turn to moths and lay their eggs.

Agrotidæ; Agrotidians.—These moths fly, some of them by day and others by night, lying concealed during the day. The catterpillars come up from the ground by night and devour the tender stems and twigs of herbaceous plants. They are smooth, shining, naked, of dark color, with pale and blackish longitudinal stripes, and a few black dots on each wing. Their form is cylindrical, tapering toward each extremity. They form chrysalis in the ground without any silken cocoons. The wings of the catterpillars are nearly horizontal when at rest, the upper pair covering the lower. Thorax smooth; head blackish, antennæ set on the under side, with two rows of short points. The fore-legs are often spiny. The moths come forth in July or August. On the approach of winter they descend to a lower depth in the ground, and remain torpid till spring.

It is chiefly in July and August that they do the most injury. At that season they often prove very destructive to fields of corn, to cabbage plants, potato vines, beets, peas, &c. Flowers are also devoured by them. From their habit of *cutting off* a plant near the root, they are called *Cut-Worms.* The largest of these moths is the *Agrotis Telifera* or the Lance Rustic. The fore-wings are light-brown, the hinder nearly white, semi-transparent, and veined. The thorax is gray-brown, the abdomen gray. The wings expand two inches. The smaller kind was named by Dr. Harris *Agrotis inermis*, or Unarmed Rustic.

Agrotis Messoria or the *Reaping Rustic* is similar to the Agrotis Legetum of Europe.

The fore-wings are reddish-gray, crossed by five bands, the first two and often the fourth being double. Spots bordered with black, hind-wings whitish, dusky-brown behind, veins dusky, head and thorax chinchilla-gray, collar edged with black, abdomen brownish-gray. It expands about an inch and a half.

A still smaller species, *Agrotis Tessellata*, the *Checkered Rustic*, expands an inch and a quarter.

The *Cabbage Cut-Worm* is larger than these, sometimes expanding an inch and three quarters. It is common in July and August, flying only by night. The fore-wings are dark ashen-gray, with a luster of satin, and are crossed by four narrow wavy whitish bands, which are edged with black. Between the third and fourth bands is a transverse row of white dots, followed by a row of arrow-shaped spots, and three white dots near the tip. The spots are edged with black and white. The hind-wings are light brownish-gray. Head and thorax chinchilla-gray. The abdomen is colored like the hind-wings.

For more particular descriptions of these insects, we must refer the reader to some scientific treatise. It is scarcely expedient to go more into detail here. To find the best remedy is the most important matter. For preventing these ravages, soaking the seed in copperas-water is recommended, though this moth seldom attacks the seed. Any application which secures a rapid vigorous growth will be servicable, and thus the rolling the seed in lime or ashes is often found useful. Fall ploughing which turns up the insects and exposes them to the severity of the frost, and to the attacks of birds is also commended. The use of sea-weed was found to be useful by Mr. Deane.

It has been found very serviceable to secure cabbage plants and the like, by tying a slip of paper around their stems between the leaves and the root. It should be wound firmly in a conical form, and be secured by an embankment of earth.

There is still another catterpillar which is destructive to cabbages, &c., but which does not conceal itself in the ground. It rests upon, and devours the succulent leaves of plants. It is of a light yellow color, with three broad yellow stripes on each side, and one upon the back. It has hence been called the *Zebra Catterpillar*. The moth is of a light-brown color, shaded with purple brown, with spots on the wings and a transverse zigzag gray line forming a distinct W on the centre, near the outer hind margin. Hind wings are white—edged with brown around the tip. This belongs to the

Mamestradæ or *Mamestrians*.—These catterpillars are distinguished for their bright colors. The moths fly by night only. As these insects do not conceal themselves they may be killed by the hands.

Geometræ; Geometers.—We come now to the third tribe of moths, which are called Loopers, Span-Worms, or Geometers, from the peculiar manner in which they span or measure the ground as they advance. One of these, a terrible pest to the farmer and of all who cultivate trees, is known as the *Canker-Worm*. It belongs to the group termed

HYBERNIADÆ OR HYBERNIANS.—The catterpillars have ten legs, six before and four behind. The male canker-worm moth has antennæ with a very narrow edging scarcely visible, and very minute feelers. The wings are large, thin and silky. The fore-wings, when at rest, are turned back, and entirely cover the hind-wings. They are ash-colored, with spots or bands upon them. The hind-wings are pale ash-colored, with a feint blackish dot near the middle. The wings expand an inch and a quarter.

Canker-worms appear usually after the first hard frosts of autumn. The time for their general rising is about the middle of March, sometimes earlier, and they continue to come forth for three weeks. The females are wingless, and instinctively make their way up the trunks of trees. In a few days the winged males appear, and accompany them in their ascent, pairing as they go. The female lays her eggs soon after, upon the extremities of the branches, from sixty to a hundred in number, placing them in rows, and glueing them together and to the tree. They soon after die. The eggs are hatched by the middle of May, or when the red currant is in blossom. The young canker-worm is a blackish or dusky-brown color with a yellowish stripe on each side, two whitish bands across the head, the belly whitish. Two minute warts occur on the tip of the last ring. When fully grown they are ash-colored on the back, and black on the sides. Some are dull-green or clay-color, with slender lines on the sides and spots on the back. Some are green with two white stripes on the back.

When not eating, they lie stretched out at full length beneath the leaves. When fully grown they are about an inch in length. They leave the tree when about four weeks old, creeping down the trunk, or dropping down by their threads, and descend into the ground, from two to six inches. They become chrysalis in about twenty-four hours, of a light brown color. They come out chiefly by night. As the females are destitute of wings, they are confined within a comparatively limited space, except as they are carried by accident to more remote places.

To prevent the ascent of the females, tar or raw cotton, or dissolved or melted India-rubber, may be placed on bands of cloth or otherwise, around the trunks of the tree in October or early in November, and daily be renewed till the insect ceases to appear. Collars of tin or lead, or troughs containing a cheap oil with some careful stuffing of fine hay, &c., which will not absorb the oil between them and the tree, is often used with good success. A little mound of sand *while it remains dry*, around the base of the tree, has proved an impassible barrier to this insect.

Sprinkling the leaves, &c., with fine air-slacked lime is sometimes successful, if used when the leaves are wet with dew or rain. A mixture of a pound of soap to seven gallons of water, thrown upon the trees by a syringe, has also been found successful in destroying these and other insects, without injury to the tree.

After they have entered the ground, swine have been found to destroy great numbers of the canker-worm. Ploughing will facilitate this mode of their destruction. Some recommend ploughing in June and the removal of the soil to the depth of six inches, for some four or five feet from the trunk of the tree, replacing it with compost or rich earth. The earth carried away should be thrown into a pond-hole and left covered with water. These last-mentioned plans are recommended by some of the best farmers in Massachusetts.

The canker-worm has a destructive natural enemy in several kinds of birds, and in a large splendid ground-beetle called *Calosoma Scrutator*. The ich-neumon fly stings great numbers of them, depositing an egg in each worm which it pierces. Each egg hatches a maggot that preys upon the worm and destroys it. The Platygaster, another four-winged fly, drops an egg in each egg of the canker-worm, which becomes a fly like its parent.

Another span-worm, larger than the canker-worm, of a light yellow color, head rust-color, and with black lines on the back, is often found very destructive to apple-trees, elms, &c. It appears at the same time with the canker-worm, resembles it in its habits, and can be kept in check by the use of similar means.

LIVING PICTURE OF CONSERVATISM.

THE following letter was sent us a few weeks since from one of the Southern States. We trust it is not a fair sample of any extensive district, and hence we suppress all the names of men and places. We sent a few copies of our journal to the gentleman who addressed us, and hope at least for further correspondence. But we wish our readers to see what that state of things is in which too many large sections of country were once placed, and from which it is so hard entirely to remove them. ED. P. L. & A.

MR. EDITOR: MARCH 23, 1856.

DEAR SIR:—My profession is that of a farmer (yet a servant of Christ.) I am poor, with a wife and four children, the eldest not eight years old five servants, among whom there is one man, two women, and two small children. I live on my father-in-law's land, which, by-the-by, is good enough for any one.

Mr. A. (my father-in-law) has many servants and children, mules, horses, and asses, and very rich land, and the old man sows and reaps *large crops*. But he is old, and is compelled—like most rich men among us—to employ an overseer, at about a cost of $200. But his cows are dying of *pure* neglect. His sheep drop their lambs unnoticed. At least three or four, I think, out of every five which have appeared this spring have died.

Mr. A. cribbed between 1500 and 2000 bushels of corn last fall, besides hay (dried crab grass), 10 or 12,000 bundles of corn-stalk blades, or fodder, and peas and pea vines without stint or measure. His hogs *usually fatten* on the peas and the gleanings of corn left in the field. His cows, horses, mules, and sheep can generally be kept fat in the pastures till about December *15*, without any care from the owner, save a little salt and driving from one field to another when the former begins to fail.

After December 15 the stock are driven nearer to the house, *without any* shelter save the canopy of heaven. The shucks, cotton *seed, and grass* are usually strewed on the muddy ground. From one-fifth *to about one-half the* feed, so dealt out, is usually picked up by the cows *or* sheep, *and, not unfrequently*, a herd of swine befoul the whole before the poor cow or sheep can chew one shuck. These things ought not so to be. But "book-larnin" was not popular in his raising, and he sees that colleges make children idle, lazy drones and spend-thrifts. But still if you can convince Mr. A. that you can make *more money* by farming than he can he will hear you and pay you too.

I have no time for more details. Mr. A., I think, is better than the average of farmers among us. If you will send a specimen of the Plough, the Loom & the Anvil, also Mr. Randall's book on sheep, or Sheep Husbandry, I think I can forward you some five or ten, or, perhaps, twenty subscribers.

Address me at ———

Very respectfully yours, ——.

ECONOMY OF PLANTATION LABOR.

A SENSIBLE writer of a series of articles in the *Alabama Planter* thus treats the matter of profits from agricultural labor:

"If the plantation was always under the immediate direction of its owner, the stimulus of interest would long ere this have directed its labor more profitably; but it has been generally otherwise by those not having such promptings, and who have had their time more occupied in active employment than in reflection. The progress made in the two branches of industry, manufactures and commerce, have been great; while in agriculture it has remained nearly stationary. Within our short memory, the spinning-wheel and the hand-loom, that worked up their half pound of cotton per day, have advanced to the great cotton factory and its thousands of spindles and power-looms, that work up their thousands of pounds a day. The largest craft in Columbus's little fleet, that discovered our shores, was under one hundred tons, is now displaced by ships of three thousand tons or more, and there is one now in progress of construction very nearly the eight of a mile long and over twenty-two thousand tons burthen. Why, when her sister arts have so immensely increased should she be so stationary? She yet travels slowly on the well-beaten old road, when she should be on the new rail-car and locomotive, and the good sense and judgment of the planter is alone to be depended on to place her there. My purpose is not to give directions, but to make suggestions, in aid of your own reflections. The first step on the road of progress is that the plantation must be fertile or be made so, so as to give a large yield, as it is a work of labor to apply it to poor land. The cotton should yield from four to five hundred pounds; corn, forty bushels; wheat, thirty bushels; and hay, three tons to the acre. With materials for manure convenient, you can neither make nor have it made for you from the stock-pens, enough to do so, as it requires more labor than you command. You must make it so by the addition of guano and the phosphates, poudrette, bone-dust, etc., as they require no labor but only money. Their purchase is a part of your working capital, and must be considered so in an improved farm. If you calculate on a certain return from your bought manures that will amply pay the purchase in their superior yield, it follows that you can make your lands rich and profitable. You may be cautious in your steps, but you cannot reach great results without a very free use of manures. Your fields are to be made rich by "ungraising," home-made manures and bought manures, all requiring but little trouble except the home-made, which should be pushed in quantity up to all the labor at your command not called for by the crop. This done well and fully, with from twelve to fifteen inch deep ploughing, with the subsoil left where nature placed it as a depository and equalizer of superabundant moisture, will be considered your first step in the path of progress.

The next will be to give effect to labor, and, as preliminary to this, I would say that the labor of cultivation must be on the plough; that no labor should be done by the hoe that the plough can do as well; and no superior hand should do what an inferior one can do as well; and these are axioms to be always in view. You have a certain amount of labor at your command, and there are portions of time when you are always over busy and others of comparative leisure, and the crop to be planted should be so arranged as not to increase work on the busy time but to use up the leisure. The scheme of crop that I propose is made with this object in view. Cotton calls for all the time of those engaged in it; corn about one-third, and wheat and hay very little. Let a crop for thirty hands with twenty good ploughs be set down something as follows:

150 acres in cotton to yield 100 bales, at $40, is	$4,000
500 acres in corn, to yield 35 bushels, is $18,000; deduct for home use $6,000—$12,000; at 50 cents,	6,000
200 acres in wheat to yield 30 bushels, say at 25 cents,	5,000
200 acres in cultivated hay—3 tons, say 2 tons at $20,	8,000
	$23,000
30 workers at $500 dollars each would be	15,000
	$8,000

"Such a crop can be attended without difficulty, as there is but about 20 acres to the hand that calls for cultivation. The small grain will be ploughed for and put in in the fall and not in crop time. The cutting in May will be the work of the reaper, and the cleaning out can well wait the laying by of the corn for any call on manual labor. The hay crop is to be ploughed in

April, in advance of the busy time, and the mowing and saving will be in August after it, and the labor principally on the machine. The price for hay is not too high if you are convenient to market, and if not put it down at ten dollars the ton. It is a very valuable crop, properly made, and much superior to that which springs up in June after laying by the corn. With a good hay crop in, I should not waste much time in the fodder field."

JOURNAL OF THE U. S. AGRICULTURAL SOCIETY.

PART I. of the Journal of the fourth annual meeting of this Society has been sent us by its accomplished President, Mr. Wilder. *It was "edited"* by Mr. King, the Secretary. It is full of very valuable matter. For our present issue we have marked certain portions of it as *of peculiar importance*, and publish them under separate titles below. *We begin with*

THE IMPORTANCE OF METEOROLOGY TO FARMERS.

This topic was treated by Prof. Page as follows:—"A year ago *last May*, the water of our wells and deep springs began to fail, and has continued *to* diminish up to the latter part of the past month. During the whole of that time not a rain has occurred which has penetrated the earth beyond the wants of vegetation. My observations have not been systematic, but I have watched the perpendicular sides of deep excavations, and have repeatedly dug into the earth and measured the depth of springs, and am satisfied that during that time no rain has percolated the earth so as to reach the deep springs. Consequently all the water we have been drawing up from the earth for more than a year and a half, fell *previous* to that time. The farmers and gardeners in my neighborhood have suffered great privation, distress, and losses from this state of things. They have deepened their wells and dug new ones, and still the water has given out, and many have been obliged to cart water for a long distance. Of all this we have no published report. *It is* for the philosopher to generalize from accumulated data, but the farmer wants to be informed every day of what is going on and to judge for himself. The barometer is not of much *immediate* use to him, but he must have the hygrometer, the rain-guage, the thermometer, and the wind-guage. I need not stop to explain the importance of noticing the velocity of the wind in connexion with temperatures, for every farmer and gardener knows this *practically*. The ways are many and various in which these observations will benefit the farmer. For instance, I ask who can raise here a California potato or a California onion? And who can tell why they *cannot* be raised out of California? I have been trying for two years to raise them here and have failed. I have planted California potatoes ten inches in length and three in diameter in *rich* soil, *medium* soil, *poor* soil, and in all have obtained potatoes not much larger than nutmegs; and so with their onions; and so it is with all their gigantic vegetables. They degenerate immediately when planted here. Is it due to any peculiar chemical constitution of California soil? I think not. It can hardly be supposed that similar soil does not exist elsewhere; and the fact that all their vegetable productions are monstrous, is an argument against any peculiarity of soils. I am inclined to think that the causes are chiefly atmospheric; and, as we can imitate climate as well as soils, it might be of great value to our farmers and gardeners if they could be furnished with information upon this subject; for it would be a great acquisition if we could raise such vegetables here.

"In conclusion permit me to say that, in carrying out *any* system of observations for the benefit of agriculture, we should not lose sight of the importance of publishing *daily* reports, in such manner as to be widely circulated."

ENTOMOLOGY.

The practical value of a knowledge of this science, was thus illustrated by Mr. Glover.

Several years ago, when I first settled on the Hudson, and was almost entirely unacquainted with either horticulture or entomology, I wished to raise my own parsnip-seed, having been the previous year very much disappointed with non-germinition of some purchased in a store, where it had probably laid on the shelf unnoticed for several years. Accordingly the best roots were procured; these grew, flowered, and finally seeded, when several catterpillars made their appearance in the umbels, which they webbed together so as to form a shelter and then leisurely devoured the footstalks and seed, thus destroying my hopes of a crop. I endeavored, but in vain, to raise some of these caterpillars, to satisfy myself what sort of a moth would be produced, as they all died in confinement or produced distorted and deformed chrysalids upon the surface of the earth. Finally, I determined to examine underneath the plants in the ground to see if I could find any chrysalids there; but none were to be seen. At last I examined the stalk again more carefully, and accidentally discovered several small perforations along the sides. This stalk was immediatety split open by means of a garden-knife, when, lo and behold, the large hollow of the stem was found to be entirely filled with caterpillars and chrysalids, snugly ensconced each in its own peculiar slight silken web. The discovery thus accidentally made induced me to burn all the hollow stalks left, and hundreds perished in the flames. I have merely mentioned these two facts to prove how it is, by a proper study of the natural instincts of almost any insect, some means may eventually be discovered to destroy it in some of the many changes it undergoes. Of some, the eggs may be plainly discovered on the trees when the leaf is fallen. Take, for instance, the tussock moth, which is sometimes so injurious to fruit and shade trees. The female of this moth lays her eggs in a frothy matter on the top of a cocoon, sometimes placed on the branches, trunks, or enclosures, and occasionally under the dried leaves that remain suspended from the tree by means of the silk by which the cocoon is formed. These are easily seen, and can be gathered together and burned in the winter, similar to the cases of the hang-worm before mentioned. Others might be destroyed to the best advantage in the catterpillar state, especially when they congregate together at certain times of the day in their web, and only come out at other stated times to devour the foliage; others in the chrysalis state, as the before-mentioned parsnip-worm; but yet it is in the perfect state that we can hope to attack them to the best advantage, as with one perfect female in spring all her future progeny for that year are destroyed.

Lights have been used to attract insects with much advantage; one was used by a horticultural friend last year. This insect-trap (for it is nothing else) is formed like a large box-lantern, only instead of one glass forming a side, two glasses are used, which slope inward to an angle towards a light placed in the interior. These two glasses are left open an inch or more in the center, as the case may be, and can be slid more or less in and out by means of proper grooves. The insect, seeing the light, approaches the glass, and, following the angle, it enters the opening, and dazzled by the light, is incapable of finding the small place where it entered, and either burns its wings against the glass tube which protects the lamp or is precipitated into a vessel underneath filled with some glutinous liquid, in which, incapable of using its wings from the adhesive nature of the compound, it must finally perish. Thousands of the small vine-hoppers, night-flying moths, and beetles were thus destroyed. Several planters South prescribe the burning of fires of fat pine wood on the appearance of the ball-worm or catterpillar-moths, as these insects are attracted by the lights and destroyed by the flame. Indeed, it is only by the instinct of insects that they can be exterminated. Appeal to their antipathies by putting anything they positively dislike in their way, and they will avoid it; place anything they particularly like in the shape of food and hundreds are attracted; for instance, the flies and wasps in casks of sugar. Love itself is used by certain *aurelians* in Europe as a means of attracting the unsuspicious males of certain species, as when an unimpregnated female is placed in a gauze box the males for hundreds of yards around will invariably gather and flock to the place of her imprisonment, where they are easily captured. It will not be improper to mention here the result of an experiment instituted by Mr. Jesse Wood, of Quincy, Florida, and several other tobacco growers of that neighborhood, to stay the ravages of the much-dreaded tobacco worm, which is only the catterpillars state of the (*sphynx Carolina*) tobacco-fly or horn-blower, as it is most commonly known by the planter. This insect, when in its perfect or fly state, is in the habit of frequenting the plants of the *datura stramonium* or Jamestown weed, during the evenings for the sake of the sweet liquid substance at the bottom of the tube of the flower, and which is easily extracted from its receptacle by means of a long flexible proboscis, furnished by nature to the insect for the purpose. This fact being known to several intelligent planters experiments were instituted which I am assured have proved highly satisfactory.

The Agricultural Department of the Patent Office received a letter from Mr. Jesse Wood, of Mount Pleasant, near Quincy, Florida, detailing his experience in this matter. After mentioning many experiments, he gives the following recipe for a poisonous composition to be put into the flower: "One pint of water, one gill of honey, and one ounce of cobalt. This to be put into a bottle, with a quill through the cork. The flowers being picked off, (as the composition poisons the plant,) one drop is put into each blossom and any fly tasting of this will be killed before it can deposit eggs." He concludes by saying that he "considers this discovery of immense value to the tobacco growers, and, if it should lead to the destruction of the cotton-catterpillar and ball-worm, it will be of incalculable benefit." Now, what Mr. Wood says in the last part of his letter is very true, as combined with the former experiments made by Col. Sorsby, of Columbus, Georgia, and reported in the last year's agricultural report of the Patent Office, where he states that the moth of the ball-worm is exceedingly fond of molasses and vinegar, which can be placed in shallow plates on posts throughout the plantation; and if these were poisoned, it might possibly prove the saving of thousands of bales of cotton annually, although I must confess that our lively and useful little friend, the honey-bee, might also be killed by the poison at the same time; but I think that, in the case of cotton versus honey, cotton would gain the verdict. The cotton-catterpillar in its moth-state will also suck certain substances with its tongue or proboscis, and it now only remains to find out what it is particularly fond of as food, and then discover also some quick and efficient poison. Several other insects, beetles, night-moths, the cut-worm-moths, and several others, might possibly also be destroyed in a similar manner if this is found to answer. Last year I made several experiments with cobalt, strychnine, and arsenic, which are not of consequence enough to be reported, as, although several succeeded, I must own others again failed in a most singular manner. However, as the subject has once been started, it would be well for several able and scientific men in different parts of the country to make experiments and then report them for the good of their fellow-sufferers.

QUESTIONS PROPOSED BY THE ROYAL SOCIETY OF SCIENCE IN DENMARK.

Philadelphia, May 10th, 1856.

To the Editor of the Plough, the Loom and the Anvil:

Dear Sir:—I send you, herewith, a liberal translation of a circular letter recently received from the Royal Society of Science of Denmark.

I presume it would please them to have it published in the United States, and I know no better medium to the reading Americans than your journal.

I am, very respectfully, your obedient servant,

P. A. Browne.

QUESTIONS PROPOSED, IN THE YEAR 1855, BY THE ROYAL SOCIETY OF SCIENCE IN DENMARK.

1. *By the Class of Mathematics.*

The general properties of new imaginary quantities are to be considered, which Galois introduced into the theory of numbers, in such a manner that their nature and qualities may be compared; such as are obtained from the consideration of what are called harmonies, with the nature of imaginary algebraic quantities occurring in the theory of equations.

2. *By the Class of Natural Philosophy.*

Since no answer has been given to the question proposed by the Society in the year 1853, it is again propounded.

As marine Sponges or Spongozoa are not yet so accurately known that we can say for certain with what other organic existences they are chiefly connected, the Society desires these new organisms to be embraced in the investigation. Therefore, it offers its medal of gold to the person who shall satisfactorily examine one species, or more, of these Sponges which exist in the ocean, as well in reference to their natural history as their structure and physiology. It is likewise of importance in this investigation that the origin and development of the different species be separately considered. The essay may be illustrated by diagrams and necessary preparations; also specimens of each species may be furnished.

The prize is the golden medal of the Society, and 100 Imperials.

3. *By the Class in Philosophy.*

An historico-critical narrative is desired of the principal instructors who have obtained some celebrity since the Reformation to the present time.

The hot vapors of water are of constant use in the various arts, whereas the hot vapors of alcohol, ether and sulphuretted carbon are not yet, as far as known, applied to the arts, although it cannot be doubted that great advantage may be derived from the skillful use of such vapors. In order to encourage experiments, on this subject, the Society offers a prize of 200 Imperials for the essay which shows the best manner of applying the hot vapors of alcohol, ether, and sulphuretted carbon.

Specimens must accompany the Essay, and also an estimate of the cost of preparation.

1. Numerous experiments having been made in reference to the manner in which roasted Coffee affects the human system, it has been ascertained that the volatile oil formed is of very great importance. Now since it happens that in parching the roots of the Leon. Tarax. or the Cich. *Intyb.*,[*] *if they* are parched and prepared with sufficient care, oils of a similar effect are produced, the common opinion prevails that if these were substituted *for Coffee*, they would produce effects similar to roasted Coffee. Therefore, the Society requests that it be shown, by recent and extensive experiments, what is the real value of these substitutes, and also the best manner *of preparing* and preserving them.

The Society offers a prize of 200 Imperials to the *person who will produce* the best technical and chemico-physiological *examination of Cich.* and Leon.

2. The oxides of metals have been discovered in many plants, not only iron and mangnese, but also copper.[†] It has been lately shown that other metals also—for instance, lead, tin, zinc, nickle, and cobalt—exist in plants, and can be seen in their ashes. Now, since it has not yet been shown what portions of these substances are of use in the development of plants, the Society desires that any one of the common trees of our forests, for instance, the oak, may be carefully examined with reference to its particles of metal, and in such a manner that it may be ascertained, by comparing with each other the different portions of the tree, as the wood, bark, leaves, and fruit, what quantity of metal exists in each part. The nature of the soil in which the tree grows must always be regarded.

The prize is 200 Imperials.

The Essays may be written in Latin, French, English, German, Swedish, or Danish. They are to be known not by the name of the writer, but by any mark which may designate his name and residence. Members of the Society, and persons living in Denmark, are not allowed to be competitors for the prizes. The person who shall give a satisfactory answer to the questions proposed shall receive a gold medal valued at 50 Danish ducats.

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[*] Leontodon Taraxacum or Cichorium Intybus.

[†] I have rendered "æs" copper instead of brass, because the latter metal is not found in nature. "Cuprum" is the proper word for copper.

IMPROVED WASHBOARD. By Royal Hatch, Assignor to H. C. Hatch, of Stratford, Vt.—The washboard is composed of beaded rounds placed together lengthwise in a frame, the beads of one round fitting into the spaces between the beads of the next round, so that a perfect corrugated surface is obtained for the clothes to be rubbed over. The water will pass through the rounds, but the suds will be retained, spattering will be prevented, &c.

EXPERIMENTS IN GROWING INDIAN CORN.

At the late meeting of the Oneida County Agricultural Society a premium of $15 was awarded to Mr. H. H. Eastman, of Marshall, for a series of experiments with different manures in the culture of Indian corn. The following statement was furnished the Society by Mr. Eastman:

Different kinds of manures used.	Manures how applied.	Quantity of manures used.	Weight of produce in the ear.		Rate per acre.	
			Lbs.	*Oz.*	*Bush.*	*Lbs.*
No manure..........			30	8	52	50
Compost*...........	In hill.	Half shovelful.	48		82	68
“	Top hill.	“	25		43	15
Quick lime..........	In hill.	Half handful.	33	8	57	68
“	Top hill.	“	30		52	50
Gypsum.............	In hill.	“	36		62	16
“	Top hill.	“	33		57	08
Ashes...............	In hill.	Small handful.	30	12	53	10
“	Top hill.	“	38	8	66	38
Equal parts lime, gypsum and ashes..........	In hill.	“	32	4	55	52
“	Top hill.	“	35	8	61	25
Guano†.............	In hill.	Tablespoonful.	20		34	40
“	Top hill.	“	33	8	57	63
Guano and Superphosphate of lime‡.....	In hill.	Do. of each.	51	4	88	41
“	Top hill.	“	37		63	67
Superphosphate of lime§	In hill.	Tablespoonful.	37	8	64	57
Lime...............	Top hill.	“	45		77	55
Equal parts poudrette, superphosphate of lime & guano‖.....	In hill.	“	43		74	23
“	Top hill.	“	33	8	57	63
Poudrette...........	In hill.	Handful.	41	12	72	11
Night soil composted..	In hill.	Double handful.	33	4	57	33
Hog manure.........	“	“	49		84	49
Unfermented horse manure..............	“	Half shovelful.	39	12	68	49
“	Top hill.	“	28		48	28
Hen manure..........	In hill.	Handful.	48		82	68
Carb. of lime.........	“	“	42		72	42
No manure...........			32		55	22

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* Composted 4 muck, 4 hog manure, 1 lime and 1 ashes.
† Intermixed with soil. Seed injured.
‡ Superphosphate on seed; Guano on outer edge of hills.
§ In contact with the seed.
‖ Intermixed with the soil.

The above experiment consists of 28 rows, and 40 hills in each row. The ground was green sward, plowed early in the spring, about 5 inches deep, harrowed thoroughly, and marked out into rows two ways at 8 angles, 3 feet apart each way. Planted the 12th of May with a "white flint" variety of corn. The cultivation of the growing crop consisted mostly in the use of the cultivator, which was run through between the rows four times alternately in different directions—with one slight hoeing only with the hand hoe. Soil, gravelly loam. I calculate the cost of cultivation, not including cost of manure nor interest of land, at about $13 per acre. The corn stood upon the hill till killed by the frost, when it was husked, each row separately, and weighed in the ear, allowing 70 pounds to the bushel.

CULTURE OF POTATOES.

An interesting discussion on this subject was had at a late meeting of the American Institute in this city. The experience of different persons seems to lead them to opposite conclusions on this, as on many other topics. Our readers will remember a very different course from that here recommended, was advised by a practical writer, who gave his experience on the speedy raising of potatoes, which was published in one of our recent issues.

In the recent debate, Mr. Sears, of the *Phalanx*, New-Jersey, said they had experimented largely on the best manner of preventing potatoes from rotting, and found that they kept best when taken immediately from the field as soon as dug, and put in slatted bins in a cellar, where the air could circulate through the pile, but no light ever came to them. He never observed any difference in their keeping, whether put up wet or dry. Their potatoes grew in dry land, the soil of which did not adhere much to the tubers.

Prof Nash, of Amherst, Mass., had long been satisfied that potatoes never should be exposed to the light. Many farmers are in the practice of sunning their potatoes all day after they are dug. It is a bad practice—no matter how damp they are, or how much dirt adheres to them. My father used to raise large crops of potatoes, and his method was to have them put in carts as fast as dug and hauled to the house, and dumped into a shute that led down to the bin in the cellar. In the spring the potatoes under the chute were found buried in earth, and were always the soundest and best, and yet had always been in damp soil. They were often found as fresh in May, as they were when dug in October. Probably the true economy of growing potatoes is to plant them in light land on inverted turf, and only calculate upon a light crop. They are certainly less liable to rot in such land than in richer soil. I would plant them in four-inch furrows and cover them with a harrow, and just as the plants begin to look out, give them another harrowing, and afterward, hoe once, but raise no hills. A good after-dressing may be made by mixing four bushels of ashes, one bushel of plaster, and half a bushel of salt, and give twelve to twenty bushels to the acre.

Judge Meigs.—If the soil is wet I would hill; if dry, level culture will do.

A Connecticut farmer said he planted a piece of under-drained swamp, one half in ridges and one half flat, and that the first produced a good crop, while the flat culture was a decided failure.

Robert L. Pell.—Col. Muir, of Scotland, has produced potatoes from clay forty feet below the surface. This contradicts the idea of the potato being indigenous solely to America.

Prof. Nash.—Forty years ago the people of Deerfield, Mass., adopted the level system of potato culture, because experience taught them it was far preferable; yet so slow are farmers to adopt new systems, that the plan has not spread out fifteen miles from the original starting point. I do fully believe that the loss in hilling corn and potatoes in Massachusetts during the 225 years that it has been practiced, both in loss of labor and productiveness, would make a sum sufficient to purchase the whole State, both real and personal property.

Robert L. Pell.—I planted potatoes on a drained swamp, and found that the rows over the drains were far superior to the others. From further experiment I became satisfied that the effect was produced by the circulation of air through the drains and the soil. I raised 425 bushels per acre; I used no manure, because the soil was that of a bog-swamp. I afterward put 200 bushels of lime per acre, and then hauled out and used the muck, and found it as good as manure.

Mr. Lowe said that raw muck put upon sandy land makes good manure for potatoes. So does spent tan bark.

TRIAL OF COKE ON THE HUDSON RIVER RAILROAD.

A TRIAL of two samples of coke, one English, the other American, has been recently made on this road. The object in making it was to ascertain whether it would be expedient to purchase a lot of English coke, which was offered at a very low price. The engine used for the experiment was a common wood-burner. The coke burned freely, and made steam well; but in a very short time the fire-bars were melted by the English coke. This was owing to the clinkering, clogging of the grate, and consequent unequal and blow-pipe action of the draft, which, while the whole fire was not very powerful, produced in parts such intense heat as to melt the bars.

The American coke was free from clinker, and burned freely without fouling the grate or leaving anything upon it or apparently injuring it.

There was no design to ascertain the amount of water vaporized, and no notes were kept from which the relative economy of coke and wood can be determined. All that is proved is, that a common wood-burner can work well with coke, if it be of such quality as will not foul the grate.

The difficulty of melting fire-bars is an old one; the early engines on the Liverpool and Manchester Railway used sometimes to have a new set of bars destroyed in a single trip. But since companies have taken measures to obtain coke of a suitable quality there has been very little trouble. The obvious conclusion in this case is, that the English coke tried was very different from that now commonly used on English roads; and yet, had it now been tried for the first time, and without the concurrent trial of a better quality, we should probably have been assured, as the result of it, that coke could never be used in locomotives.

But since it can be used, without the expense of altering fire-boxes, we conceive it to be a duty to the traveling public to adopt it, as a means to get rid of the smoke and sparks of wood, and also a great part of the noise which is made by the striking of the steam against the cone, and other parts of the spark-arrester. This contrivance sends out the smoke in a direction nearly horizontal, and insures to it the best chance of finding its way into the cars. But from a straight and unobstructed chimney the smoke is projected upwards clear of the train, and it is only when there is wind blowing against contiguous embankments, or other objects to disturb its course, that the smoke touches a train.

Even if the cost of coke should be greater than that of wood—instead of less, which is most likely—this company would probably find it profitable for passenger trains; because the sparks, which compose the greater part of the solid impurities of the air which they supply to their passengers, are so injurious to ladies' dresses, that many prefer to go by steamboats, who would go by rail if this nuisance were removed. This is our argument.—*Railroad Advocate.*

THE VERBENA.

This is a beautiful flower almost in perpetual bloom, and presenting every variety of color. The *Country Gentleman* gives the following article and list:

Search the whole list of plants—and there name is legion—and there is none, taken all in all, that can at present dispute the palm with the Verbena as a summer flower for bedding purposes. So varied are they in color, somewhat so in habit also, that a large space could be planted exclusively with them and yet present anything but a monotonous appearance. Indeed so indispensable are they in the arranging of very extensive geometric flower gardens, that they always form a large proportion of the entire plants used. No other plant of the herbaceous character, is so nicely adapted to supply this demand with so little trouble. Secure a few dozen pots in the fall, of a healthy character, and by the time they are wanted to plant out in the spring, with proper conveniencies, which need be nothing more than a very small greenhouse and abundance of pits, thousands of the best plants may be obtained. Any one who remembers the original imported kind, *Melindres*, a very rich scarlet, from Buenos Ayres, and considers for a moment, that the numberless different tints and shades now to be met with, counted by hundreds in Florists' catalogues, have sprung directly from that, can have no better illustration of the sportive character of certain plants when raised from seed, and which only need a little care in the selecting of the seed to be improved. Even if sown out of doors, and treated as an annual, it will flower in August and continue till entirely destroyed by hard frost. Any ordinary good garden soil will grow them to perfection, providing it is rich enough, and if too stiff and retentive in its nature use plenty of street dirt, good sharp sand and decayed leaves, while if the soil is already very sandy, thoroughly rotten manure should be used very plentifully. To keep in a flourishing condition all summer, they require abundance of room, so that as the branches extend themselves they can find nourishment by the roots that strike into the soil from almost every joint. If planted less than a yard asunder they soon fill the entire space, after which the flowers will not come so freely. Where land is plenty and a large space of it to plant, four or six feet asunder is not any too much, as many of the strong growing kinds will extend over a space of six or eight feet during the season. In a plant like this, sporting into so many different varities, and raised from seed by so many florists, almost every locality having one or more, who is raising and distributing those of his own naming, it is difficult to give a selection of kinds obtainable, and suitable to all, but the following list are known and tried kinds, and if not as good as some of the new ones advertised by the different florists, they can all be depended on as first-rate.

Auricula, lavender blue, white eye.

Black Warrior, dark indigo purple.

Blue Bonnet, deep blue, shading to purple.
Indispensable, (Beck,) very rich crimson.
Defiance, the best scarlet.
Fair American, large white, strong grower.
Henry Clay, rich ruby, maroon center.
Jenny Dean, bright cherry, pink center.
Mad. Lemounier, fine satin rose, white stripe.
Mad. Sevigne, dark plum purple.
Mazeppa, rosy lilac and purple.
Phenomena, intense scarlet crimson.
St. Margaretta, rosy scarlet, violet center.
Thalia, pure white very fine.
Uncle Tom, very dark maroon.
Viscota, rich crimson maroon, free bloomer.
Beauty Supreme, satin rose.
Beauty of Astoria, light pink, shaded red.
Clotilda, lilac and purple, very showy.
Fadette, bluish white scarlet eye.
Fair Maid of Perth, bluish, cherry eye.
Gen. Scott, blood-red or crimson.
Gem, (Bauch,) bluish pink, shading to pink in center.
Heroine, deep lilac blue.
Imphigene, lilac and rosy purple.
Lord of the Isles, fine deep rose.
Mad. Clonet, rosy crimson, shading dark in center.
Macrantha, rose white, rose purple center.
P. B. Mead, rich shaded pink.
Painted Lady, white crimson center.
Queen of Whites, good white.

ARTIFICIAL PROPAGATION OF FISH.

At a recent meeting of the Boston Society of Natural History, Dr. H. R. Storer, at the request of the President, briefly stated some of the well-known facts relative to the artificial propagation of fish.

The operation of obtaining the ova and milt is very simple, consisting merely in pressing the body of the fish, from the head towards the tail, and collecting the spawn in water, in a common vessel. The contents of the vessel should be put in motion occasionally, to prevent the collection of parasitical growths upon the eggs. Freezing, or even complete dessication of the eggs does not always necessarily destroy them; so that some kinds of eggs may be transmitted from one place to another in the dry state, and ready to be matured. Dr. Algernon Coolidge, of Boston, has estimated the cost of raising one million of trout to be less than two hundred dollars.

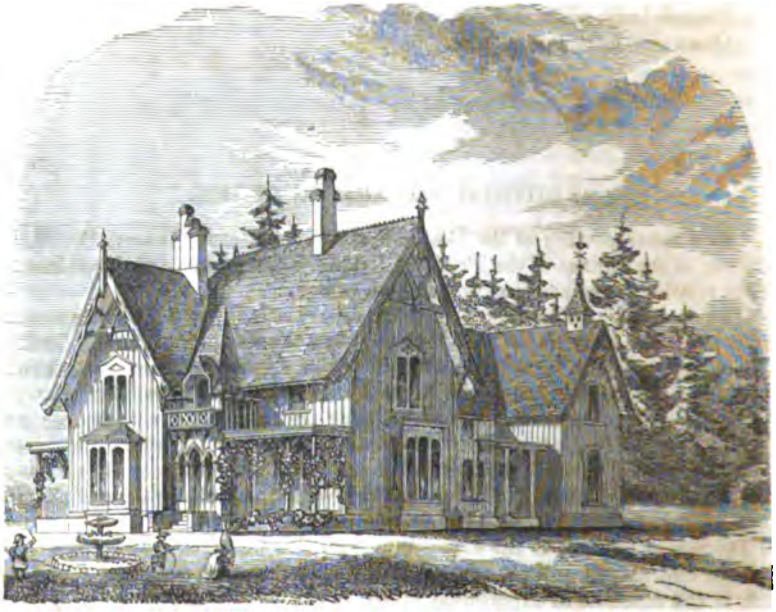
Dr. Storer referred to the extirpation from this Commonwealth entirely of salmon and almost entirely of trout, and to the constant demand for these fish in the markets at exhorbitant rates; to the comparatively small supply of salt water fish, wholly insufficient, if proper efforts were made to extend the country and Western trade; and to the excellence of many species of fish, now unsaleable because not generally known, as the whiting, turbot, &c.

The feasibility of artificially propagating salmon and trout has been proved in France and Scotland, and that of shad and alewives has been proved in Connecticut, on a small scale, by Dr. Wm. O. Ayres, formerly a member of this society.

The capacity in many species of fish, of adapting themselves to new localities is well known; from fresh water to fresh water, as is shown in the instance of the common pickerel, placed in the ponds of Berkshire County, where there were none before, and in the instance of the great Northern pike of the lakes, transplanted to the Connecticut river; from salt water to fresh water, as is illustrated by the presence of smelts in Jamaica pond; and from salt water to salt water, as is proved by the tautog planted in Massachusetts bay, North of Cape Cod, and consequently in water of much colder temperature.

Dr. Storer alluded likewise to the comparatively small expense, both of the preliminary experiments, and of the business when established upon a permanent basis; to the adaption of many of the waters of this State to this purpose; and to the advantages of a greater supply of fish to the general health, and in reducing the prices of meat

AN ORNAMENTED COTTAGE.

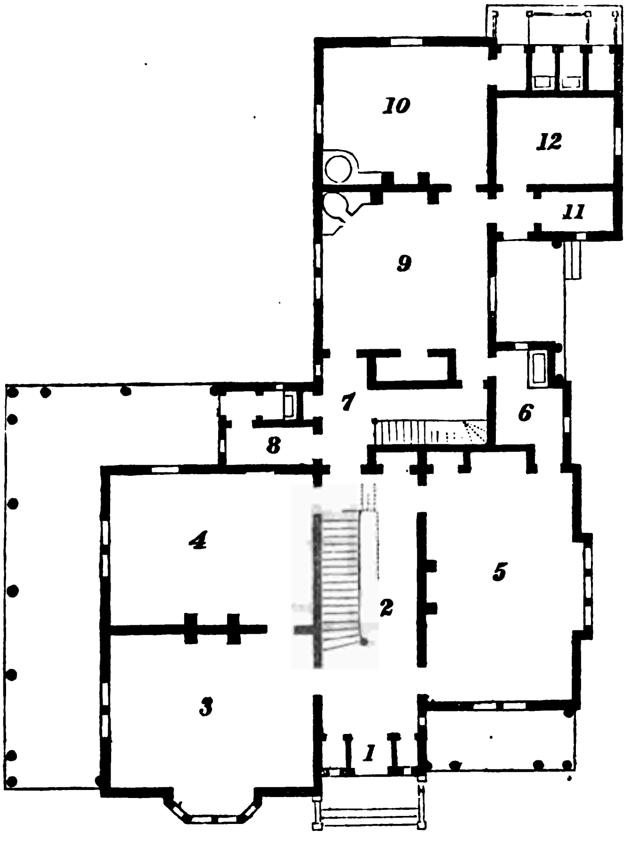


The situation for which this building was contrived was bold and beautiful, overlooking the rich valley of the Housatonic, in Berkshire Co., Massachusetts.

The plan is arranged thus. In front, a few steps, protected by an overhanging balcony to the window above, lead to the hall door, which opens into a vestibule, No. 1, on either side of which are hall closets with sash doors towards the inner hall, and narrow windows upon the exterior.

Within this is the inner hall, No. 2, and in it the principal staircase. This hall is ten feet in width, and, exclusive of the entry and closets, twenty-eight feet in length.

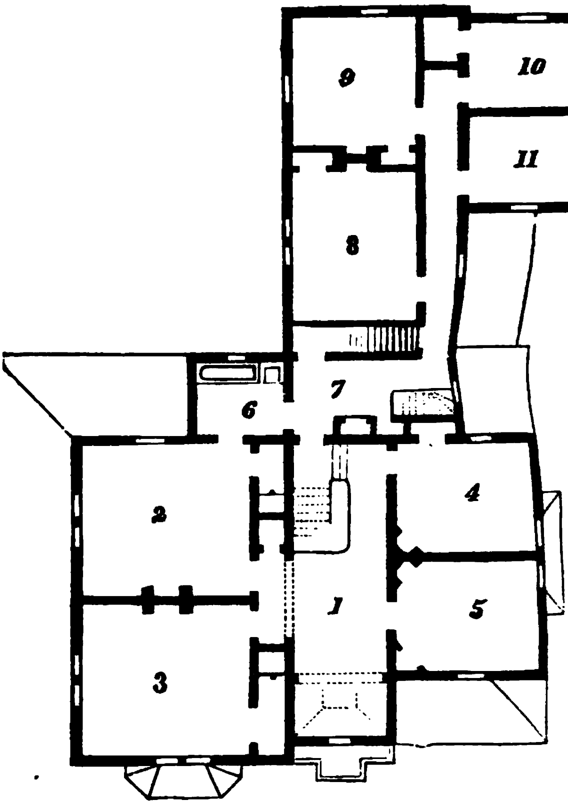
Connecting with it on one side is a drawing-room, No. 3, with a projecting window in front, and a double window opening on to the side veranda; its dimensions, exclusive of bay-window, are twenty-two by sixteen. In the rear of this is the library, No. 4, the same size as the drawing-room, with the exception of the space inclosed by the projecting window. In this room are double windows to the veranda at the end, and one at the side, corresponding to which is a recess in the wall for a mirror, the finish around which should be the same as that to the window, and the symmetry of the room will thus be preserved.



ORNAMENTED COTTAGE—PRINCIPAL FLOOR.

Upon the other side of the hall is the dining-room, No. 5, a fine apartment sixteen by twenty-four, exclusive of a recess at one end for a sideboard, and a projecting window upon the side. The room also contains a closet, and attached is a pantry or waiter's room, No. 6, with a sink, and a door connecting with the kitchen.

At the end of the principal hall a sash door leads into an entry, No. 7, from which is the back staircase to cellars below and floors above. In this



ORNAMEDTED COTTAGE—CHAMBER FLOOR.

is a closet for fishing-apparatus, baskets, &c., and from it a door leads into a dressing-room, No. 8, containing wash-stand, water-closet, and an outer doorway leading to the veranda.

Beyond these is the kitchen, No. 9, a large, well-lighted room, with a large closet at the end, opposite the fireplace, and next the latter provision is shown for an old-fashioned brick oven, if the family desire such an appendage. The fireplace is of a large size, suitable for a Metropolitan range and roaster.

In the rear of the kitchen is the laundry, No. 10, with a boiler inserted near the fireplace, and from this a door leads into an entry connected with a platform conducting to the outer yard, and, as shown by the plan, two water-closets, and a tool-house, are inclosed within this portion of the building. The remaining portions of the plan are No. 11, a larder, and 12, a small wood-house for the storage of fuel for immediate use. A side veranda shelters a rear entrance to a hall leading to the kitchen, &c., by the side of the larder, and examination will show that every comfort and convenience has been secured, in the arrangement of the plan of this floor. The height of the rooms in the main part of the house is eleven feet, and that of those in the kitchen wing, nine feet six inches.

The chamber plan shows a large hall, No. 1, at the end of which an arch opens into a lower bay, from which is a window on to the balcony. From the side of the hall a similar arch leads into a vestibule conducting to a chamber, No. 2, by the side of which is a large hall-closet, and in the room itself one of ampler size and fitted with drawers.

In front of this is a chamber No. 3, and at its side a large closet. Upon the other side of the hall, above the dining-room are chambers 4 and 5 with closets.

The wing building contains a bathing-room, No. 6, which is provided with a door into chamber No. 2, so that in case of necessity, they could be used in connection. The entry No. 7, has in it a house-maid's closet and sink, and under the stairs which lead to the space in the roof above the ceilings, in the principal body of the house, is a large linen closet.

Nos. 8 and 9 are large bed-rooms, each one provided with a fireplace and closets, and 10 and 11 are sleeping-rooms of smaller size.

In the front part of the house the high pitch of the roof affords an opportunity of partitioning off, if wished, three good sleeping-rooms for servants, though independently of the increased accommodation thus capable of being made, the plan shows that a liberal amount of room is laid out upon this floor.

The cost of this building, finished fully, including a large furnace to render the house comfortable in case of winter occupancy, plumbing and painting, would depend upon situation; in the instance for which the design was made, the contract comprehending all these, was about six thousand dollars, but a very careful finish was insisted upon, and the house contains all the appendages found in a suburban villa.

These engravings and the substance of the description are taken from "Homes for the People," an excellent work by Gervase Wheeler, an architect in this city, and published by Mr. Scribner. The volume is well worth the attention of those intending to build or improve. The price of the volume, sent by mail, is $1.

FOR THE PLOUGH, THE LOOM AND THE ANVIL.

A GOOD FARM GATE.

Mr. Editor:—I cannot believe that we, the farming community, sufficiently appreciate your valuable work, the P. the L. and the A., (name too long,) as a medium through which to interchange our experience and various ideas of improvement.

We seem to treat it as too many of us do our lands; we willingly glean from its pages as from our fields, whatever we can appropriate to our use, but never think of making any similar return. Thus, my dear sir, we are taxing your brain and your pen to supply, and gather from sources at your command, such material as you may think will be acceptable to us, or adapted to our wants. I do not know whether you are a practical farmer or only an editor; but I know that many of our practical farmers can furnish many articles, upon various subjects of practical utility to each other, thus receiving and conferring mutual benefit.

Hoping that others will act upon the above suggestion, I will contribute my mite, by offering the best pattern and mode of hanging a FARM GATE.

It is very desirable to every good farmer to have good and substantial as well as cheap gates, at all places on his farm where there is a necessity of various passings with wagons or stock, &c.

This gate is hung upon a cast-iron pivot, with an ink or socket let into the beam in an inverted position. The pivot should be about 1 inch in diameter at the point for a heavy gate, for one of 500 is as easily opened and shut as of 100 lbs. I need not remind any one of the necessity of selecting the most durable timber for posts. Locust is the best. To preserve the post from absorbing rain at the the top, it may be tapered to about 4 or 5 inches, and secured by an iron band to prevent splitting.

The beam should be tapered from six inches at the pivot to about 3 at the point. Four bars framed into an upright will generally be sufficient; more or less may be used. The plank or boards should extend a little so as to lap upon the post against which it is shut and fastened. Any fastening may be adopted according to fancy. The mode which I have adopted, and think equal, if not superior to any other, is to insert a hook into the post to receive the end of the beam. This is secured firmly in its place by a pin passing through the post; the pin should be secured by a string or a small wire chain is better, of just sufficient length to allow the pin to be drawn into the post, but not entirely through, thus it is always kept in place, and easily forced in with the finger or a stick if on horseback, and as easily shut and fastened after passing through. After the gate is hung in its place, a weight sufficient to balance it should be attached below the end of the beam which extends beyond the post. This may be done in different ways; a billet or log of wood, fastened by slats pinned upon the sides, is perhaps the simplest. A very neat and convenient way is to make a box into which rock or any heavy article may be placed till the gate is balanced. The beam should not be placed at the top nor mid-way the gate, as I have often seen them, but just one-third should be above and two-thirds below the center of beam and weight as before described, and the gate will always hang perpendicular.

The superiority of this gate will doubtless be obvious to your readers. 1st. it is the cheapest, if made plain; for it is equally adapted to lattice or any kind of fancy work. 2d. The pivots cost only $\frac{1}{8}$ to $\frac{1}{4}$ of the price of common hinges made by the black-smith. 3d. It is impossible for it to swag or drag upon the ground, as common gates are apt to do, often requiring the strength of a man to open or carry them. 4th. It is as easily opened and shut as a house door. 5th. It will last much longer than common gates, say four times as long if well made and painted, as all gates should be which are exposed to the weather. One day's work by any plain carpenter will make one of these gates, and the castings may cost 25 to 37½ cents. I furnished my own patterns, and they weighed 5 lbs. There should be a collar or flange around the pivot to rest upon the top of the post.

I am, dear sir, very obediently yours, J. MARS.

DEERFIELD, VA., April 21, 1856.

INFLUENZA OF HORSES.

CONTINUED FROM MAY NUMBER.

BY CAPTAIN RALSTON, GRAD. ROYL. VET. COLLEGE, AND MEMBER ROYL. COL. VET. SURGEONS. ETC.

Your correspondent is no murmurer at trivial "*faux pas*," accidental or not and be the same of "the press," an' so please you, Mr. Editor, or other grave stumbler; but he cannot refrain from a comment on his last article, as it appears in your pages of last month. Has its press-connection not been very lax? or is it that his own caligraphy has been of the shape and character of that of the old gentleman, an official of a Scotch bonding warehouse, who never could read his own hieroglyphics next day, and wont to testily answer, when asked for explanations of his endorsations of office-papers, "What come you to me for, eh? Sir, I am docket-writer an' no docket-reader." However, any one, even a corrector of "the press," may misapprehend a technical term; but still, it is somewhat of an irksome fact to be made, in a professional communication, to say "impinctival" for "conjunctival;" "imitative tinctures," for "irritative tinctures;" "tartarged antimony," for "tartarized antimony;" etc. Moreover, of constructive punctuation it might be objected that there were some little room for mending, on an occasion?

The previous observations, on (so-called) "influenza simplex," are proposed to be here followed up with some, on "influenza maligna;" but it must be admitted that in any attempt to do so are contained many elements of a "questio vexata," inasmuch that neither satisfactory data of fact or inference can be brought to bear upon this latter peculiar type of disease; one whose causes and effects, symptoms, indications, and terminations are each and all full of perplexity. Electrical phenomena, and deranged conditions of the atmosphere; nervous, infectious, and contagious complications, are all mixed up with considerations of it. And how much of real or reliable progress has medical science and investigation, as yet, made towards apprehending, or revealing, the mystery in which nature seems to have shrouded those first-named phenomena, whose relations to all vitality, whether animal or vegetable, in normal or abnormal states, are so all-pervading!

At the present time, influenza and its morbid coördinates appear to be cognate of extra claims to attention. Well nigh half of the population of Paris are said to have been suffering from quinsy, or some other form of influenzal malady; and in this country, as elsewhere, the prevalence this spring of affections of the air passages, and of neuralgic ails, has been of a very marked character. But here it is in relation to animals—more especially horses—these remarks are intended. It may, however, be passingly noted, that when epidemic sickness is produced by deranged atmospheric conditions, and which operate oftentimes inscrutably, that in the human subject fatality seems to be most apt to attend upon cases where the internal tissues and glands of the alimentary passages and abdominal organs sympathize and take on morbid action; while in animals, fatal results seem most to accompany the manner in which the membranous linings of the air-passages and cavities of the chest yield to diseased action.

Influenzal disorder, in various localities, as well as in various gradations, has been, and is now, a very formidable evil in many parts of this State, as in other regions. It is a class of malady which has proved a very devastating epidemic among horses and farm-stock, at frequently recurring intervals, in all parts of the world. At the present time, its ravages and progress in Europe have been so serious, that the French and different other governments have taken alarm, and are directing scientific inquiry into its origin, and the adoption of veterinary measures of precaution and remedy. Does it not emphatically behoove that in this great agricultural and stock-raising country, timely forethought should be stirred up, and that this should lead to means for the introduction and diffusion of veterinary knowledge and skill, through the various states and districts? Adequate advice and precautionary measures depend wholly thereupon, and from no other source can rational remedies ever be derived in cases of disease, or information as to improved care and treatment of animals be ever expected to flow.

Influenza, in its various phases, may be epidemic or endemic; the *former*, when supervening in a very extended or general manner; and the *latter*, when peculiar locality seems more immediately to be the occasion. *In its* simpler form, of catarrhal cold, the proximate cause appears to be *dry*, searching weather or winds, attended by a good deal of mid-day sun. *In its malignant* character, does it present only an aggravated degree of the *same complaint*, or is it now especial in cause and effect? This is a direct and *may be inferred to* be a simple question, but it is not one to be either *very well or directly* answered. For himself, the writer has come to be forcibly of *opinion that* in influenza maligna are recognizable causes and effects that are both specific; that to produce it there is in operation, not only the aforesaid characteristics of weather, but some great alteration of the atmospheric constituents—perhaps their chemical decomposition—and that the air when inspired so, acts as a local irritant superficially, and as a poison when absorbed by the lungs. And he goes further, for not only does he believe in this specific action on the circulation, through absorption by the thoracic viscera, in animals, but also at times through the stomach and lining surfaces of the human alimentary canal; when the result will be deranged action of the bowels to correspond.

Of influenza as an endemic, proceeding from locality, an illustration not a little pointedly in place may be adduced. There is a rising hilly district, called "Gullane Links," (*links—Scotticè; downs—Anglicè*) near Edinburgh. This spot is situated on the Frith of Forth, an inlet of the German Ocean, into which the river Forth debouches; and a more delightful, breezy summer "locale," for an exhilarating gallop, than is presented by the short, grassy, elastic turf of its slopes, cannot well be imagined; while the fertile, highly cultivated Lothians (the midland counties of the lowlands of Scotland) on three sides, with the fresh, rolling ocean-billows combing and sparkling on the other—and six or seven miles across, the shores of Fife, Stirling, etc., (as it were a fine landscape picture,) and having beyond all the range of the Grampians, so suggestive of the Highlands and the old clan-times—the whole, with the throned capital, its castle, spires, and hills in the view, combine no common scene:

> "Edina! Scotia's darling seat!
> Behold her Palaces and Towers;
> Where *once* beneath a Monarch's feet,
> Sat legislation's Sovereign Powers!"

If this be a digression little in keeping with the present thesis otherwise, *memories*, as best they may, must even be its plea! The capital upland levels, however, of Gullane Links, for condition-exercise and finishing well with race-horses, at one time rendered this a very popular training quarter, where were several public stables. Few or no horses go there now, however, because the place being open to that coast of Scotland where cold dry spring weather, along with north-easterly winds, is apt to prevail, for a few days at a time, and this often with bright April and May sun, it was found that the horses, particularly the two and three year olds, were very prone to influenzal attacks—or distemper, in racing parlance; and which, in some seasons, swept through the stables. Here, then, this disorder was evidently endemical. It usually yielded to judicious treatment; the most intractable symptom being tumefaction of the parotid and sub maxillary glands, sometimes so great as to alarmingly impede respiration. The writer can recall the case of "Highlander," a valuable plate-horse, of Lord Fyfe's, who died of suffocation from this cause; a fatal termination, however, which ought not to have resulted, if any competent veterinarian had been at hand, as tracheotomy would have yielded instant relief to this symptom.

Having used the term of "finishing well," perhaps it may be only pertinent to explain, that being able to finish well means, in racing phraseology, that a horse's powers admit of his being extended or pushed at the end of a heat, or a race, without winding or distressing him; and, in training, a place for finishing well is a gentle ascent at the end of a line of gallop, where either an individual horse, or "a string," can be "hustled up," under the observant eye of the trainer, who judges of clearer wind and improving condition, from a better or more persevering style of "finishing," whether in a usual morning gallop, or "a trial," as the case may be. Again, as to the phrase "plate-horse;" it is a British one, which means that a race-horse of four years old and above, is in training to run for those royal plates, or cups, of 100 guineas, given annually by Government, at various courses in England, Scotland, and Ireland. The public object is the improvement of the national or general breeds, by hereby contributing to foster the raising of turf or thorough-bred horses, of substance and fine form, and possessed of powers to contest the palm in four mile heat-races, under very high weights; six years old and all aged horses carrying twelve stone, or 168 lbs. These horses, after being withdrawn from the turf, become the stud horses of the agricultural districts. Local racing associations and clubs likewise subscribe gold and silver cups and pieces of plate, in order to be given in a similar manner and view; but the distances more usually run in these instances are two miles.

That influenza maligna is a specific result of unbalanced, or abnormal, atmospheric conditions, is more easy to assume than to prove; but that it is so, has long been a conviction of the writer, however vague or speculative his reasoning, or feeble his attempt to convey his own impressions, may read. The morbid influences which he supposes to preside are intrinsic, as regards the aeriform medium we inspire and have our being in. Decomposition of animal and vegetable matters; neglect of drainage and the proper scavengering of cities; the hospital or lazaretto; the pent-up and impure surroundings of the poor or the ignorant—these and other sources may taint the air, or the spot, so that the former being breathed, or the latter touched, putrid fever, or disease of some distinctive type, low or typhoid, or more actively malignant, may be the consequence; and here is conveyed the ordinary ideas of infection and contagion; and no doubt correctly so, in so far. But that plague or Asiatic cholera, in the human subject, malignant influenza of horses, or murrain of cattle, are infectious or contagious, in the same sense, the writer is skeptical.

Irrespective, or short of such excess of aforesaid malarious agents as were capable of engendering positive disease, there yet may be other or lesser degrees of malarific agency, such as would go only the length of impairing constitutional stamina, in a manner to predispose the individual to yield under some sickly influence, which otherwise might have passed him by. Is it not, then, in this way epidemical, as well as other sicknesses assault some, while others escape, or that plague and cholera have seemed often to select their victims? The writer was serving as an officer of cavalry, in cantonments at Arcot, in the Southern Peninsula of British Asia, when cholera broke out, and the mortality proved terrific. The farriers and bandsmen of one of the regiments, the 13th Light Dragoons, were cut off in a very disproportionate degree, as compared with any other of the rank and file of the corps; and this undoubtedly was from the fact that these men had money to spend more freely (obtained from permitted private services, rendered out of duty hours), and were mostly intemperate. Still, the proximate cause of the disease, in all cases, was the same; and assuredly that cause was a peculiar condition of the atmosphere, which might be properly termed malarious, not from palpable agents extrinsic of itself, but from its own constituents being in an altered state, which it is ventured to here predicate might be one of malarific decomposition. This idea, or theory, is one the writer has not known to be broached by other observers; but no other inference seems to account for the phenomena of malignant cholera or certain other epidemics. He does not aim at confident assertion in his premises, or to offer strictly-inductive proofs; but he was a very young officer when he witnessed the terrible scene of havoc from true Cholera at Arcot, and noted its singular and fearful march from thence around the globe, as may be said. During four or five years after, up to 1834 or later, it moved from east to west, as a kind of erratic zone or belt of unseen and death-striking miasma, carrying the first dire alarm of Asiatic Cholera to the continents of Europe and America. From this, and his after-studies in veterinary medicine, and opportunities to watch the onset, progress, and decline of epidemics, at various times, among the horses of several regiments of cavalry in his veterinary charge, have all concurred not only to imbue with these strong impressions, but forcibly to vest them in present opinions.

It may be not undue to superadd, that there may be states of the air, arising out of miasmatic impregnations, the combined product of heat, moisture, and decaying-vegetation, or pent-up impurities, whose effects resemble those assumed from the origin aforesaid. In such kind of contamination may even be the exciting cause—the yeast that starts the fermentation of those atmospheric conditions, the visitations of which are displayed in virulent or wide-spread epidemics. Such miasms, themselves, may give direct rise to specific fevers—as the jungle-fever of India, or the yellow-fever of the West Indies, or cholera-morbus, etc.—but the plague and Asiatic Cholera in ourselves, the malignant influenza of horses, and its congener the murrain, or pleura-pneumonia of cattle, infer chemically altered conditions of the atmosphere itself, and in which that mysterious but everywhere and all-potent agent, electricity, plays no insubordinate part.

In the observations of your last month's journal, new or substituted ideas of "typhus," and "typhoid complicities," with malignant influenza, were demurred against, and it was maintained that it was better to hold to the old notions." But not only was it against the innovation, but because neither the sudden attack of the latter—the rapid and extraordinary prostration of all energy—the disorganized secretions—nor the tabid state, which lingers on to death in from five to fifteen days, seem to correspond to usual ideas of typhus. The want of coherence of the blood and the escape of the serous part, through the bowels in human Asiatic Cholera, and the tendency to the same thing into the cavity of the chest of horses and cattle, in influenza and pleura-pneumonia, are facts to be noticed; as are also the peculiar.

vesicular affection of the mouth and hoofs of cattle, which attends the latter affection.

But, in horses, what really is the disease, then, which is treated of? The reply continues to be vague; and must be accepted in connection with the foregoing premises. It is not pleuritis, and it is not pneumonia, and yet partakes of affinities to both. The indications are rapid, yet sub-acute, contradictory, and bewildering. The veterinarian of true skill is baffled, and acknowledges it; and pauses, in doubt how to act where the symptoms are at once so indeterminate and conflicting. The two safe points to take up are—*First*, that all due measures of prevention on the part of horse owners and raisers should be adopted. When the atmosphere is electrically disturbed, and the weather dry, and the wind cold, as is so often the case in spring and fall, every careful precaution should be taken. In these states of weather, whether it be aeriform malaria or no, still every one may have observed in his own case how flaws of wind will create neuralgic aches, or some exposure bring on influenzal symptoms. Stabled horses should never stand in flaws of such wind, and in such weather should never be exposed while warm, or after sweating. Stable currents of air should be guarded against, although ventilation ought ever to be carefully studied. Horses that are in the fields, or depasturing, should at once be sheltered against the direction of the wind, in such states of weather. *Second*, that the onset or early stage of any attack, in such weather, should not be allowed to pass unobserved. It is only immediate measures of relief that are likely to repay owners at times of epidemics. If a horse be noticed with a slight defluction from the nasal membranes, or with a little cough, or degree of tenderness of throat, or any dryness or staring appearance of coat, let him be clothed more warmly; woolen leg-bandages be put on from the hoofs to the knees; a boiled barley or malt mash be given at night, with a dram of sugar and two drams of nitre in it; and let the drink be nitro-bran water. In the instance of the dry coat, should there be no soreness of throat, some blood-warm gruel, with a tumbler of sound ale, and two drams of ginger, in an ounce of honey stirred into it, may be given once a day for three or four days; or the stimulant treatment, generally, recommended in former article on influenza, may be had recourse to. But if the symptoms begin to appear more urgent, the head to be hung, the flanks to heave, etc., then instant professional assistance should be called in, if possible. Unfortunately, from the narrowed and neglected sphere of the veterinary art in this country, there are very few places where competent assistance can be obtained. In this case, owners, farmers, and others had better either trust to their own intelligence, or the "vis naturæ," rather than resort to those who are often as bold and dangerous in their hap-hazard remedies, as they are ignorant of all physiological or pathological truths. The blacksmith may mean well, or fancy he can be of some medical service, and, if he is consulted and relied on, there is no wonder that he should act. If he declined, then he was far above ignorance; for he had learned to curb the proneness to human vanity and a natural sense of self-interest. But that the educated and intelligent should yield to the delusion that because a man is familiar with horses, or forges, and nails on their shoes, he must, necessarily, have become pregnant with veterinary knowledge and its scientific attainments, is indeed surprising. This would truly be the "afflatus" divine, not of poetry, but of medicine; and if it correspondingly caught cobblers, they would be the best of physicians! The writer advises the horse owner to either trust to nature, or inquire and prescribe himself, if an educated veterinarian is not to be had;

and this without any failure of right and just respect to his horse-shoer, who may very properly be employed to bleed, or give a bolus, under his directions, should himself, or no one in his immediate employ be able to do so. In the very early stage of an influenzal attack, bleeding may do good, but only then. Horses are very soon unable to stand up against venesection in this malady; cattle still sooner and less able. What is now said as to treatment does not differ much from the observations in the preceding article. Whenever mucous discharge has come on, sedatives must be substituted for any attempts to take away blood, in a view to endeavor to reduce and regulate the hectic action of the heart and arterial system. From four to six doses of tartarized antimony, calomel, and opium may be given—say ½ a dram of each, made into a bolus with liquorice-root powder and treacle; two doses a day. Or ½ dram doses of digitalis may be alternately substituted. Counter-irritation should not be delayed, viz.: Trim the hair closely off along both lower sides of and under the throat, and for eight or ten inches broad on each side of the chest, behind the elbows; *then soak all the* trimmed space for a minute or so with large flannels, *wrung in hot water;* and immediately thereon rub in 2 ounces of blistering *ointment. Nitrate of* potass, or purified saltpetre, is a valuable remedial *agent in this complaint.* A small portion may be dissolved in all the gruel or drink given, and in the water offered. A rowel, dressed and changed daily, with savine ointment, may be inserted in the breast. For cattle, two setons eight or ten inches long, through the dew-lap, is better. As regards food, any may be allowed the animal will touch, for the disinclination to eat is usually great. Linseed gruel, oatmeal gruel, malt mashes—these are best; and the recovering animal should be tempted with these, in small cleanly portions—a bite of fresh hay—a handful of oats, etc. Clysters of gruel are good, at once to assist in evacuating the bowels and sustaining the strength. When the more active febrile state has passed, stomachics and tonics are most useful. To those more homely recipes stated formerly, the following may be added:—Carbonate of ammonia, 1 dram; gentian powder, 1 dram; ginger powder, 1 dram, stirred into an ounce of honey, and then mixed with a quart of gruel: or sulphate of copper, 1 dram; ginger, 1 dram; liquorice—root powder—2 drams, and treacle enough to form a bolus. The draught may be given in the morning, and the bolus at night, for three or four days, and then daily, alternately, for a week or more.

But, in conclusion, the writer reiterates that the defence against this epidemic is precautionary measures first; and next, early attention to any attack, and prompt professional assistance, if to be obtained. He has known two stock-farmers, in the same locality, one of whom, on the atmospheric conditions indicated prevailing, along with a certain direction of wind, collected all his unhoused animals and sheltered them merely in his stock-yards, while the other used no precautions. The mortality among the latter's stock was ruinous; he lost more than one-half of his whole herd of cattle. The former escaped with an amount of casualties that were very light, in comparison.

JOHN C. RALSTON.

IMPROVED PIANO-FORTE.

THE INVENTION OF SPENCER B. DRIGGS, OF DETROIT.

The private history of useful inventions, could it be known, would be found very curious. Their failure or success often depends on very trivial circumstances. Besides how many new ideas are conceived and partially formed, and even carefully studied, but, for want of complete development, are considered worthless, and are thrown away. That same idea is suggested, accidentally it may be, to some one who follows it out in the right direction, and it becomes a valuable estate.

It is but in the last week that we accidentally heard a tuner remark that the thick and heavy timbers which so abound in the piano-forte were of no use but to give it strength to resist the powerful tension of the strings. We knew this before, but at once we asked ourself the question, Then why not dispense with this cumbersome contrivance, and resort to an iron frame? The thought being but an incident, was laid aside, other matters demanding our attention. But lo! to-day we have seen that very idea most successfully carried out, and have proved its reality and its great value by the test of our own fingers and our own ears. It is not an hypothesis, or a probability. It is a demonstration.

Piano-fortes have heretofore been formed of cases, some two inches thick, over a large part of the sides, while the bottom and the interior is some six inches thick, filled up with blocks of wood for braces. The whole forms a heavy, almost immovable mass of timber, on which the wires are strung, while a thin sounding-board alone gives musical effect to their vibrations.

In this instrument, the invention of Mr. Driggs, the case is only half an inch in thickness, while the bottom is a single veneer, an eight of an inch in thickness. This is made stiff or firm and sonorous by being pressed into an iron frame of dimensions not quite so large as those of the wood, thus securing to it a concave form, like the back of a violin. This extends the entire length of the instrument.

The sound-board differs from the old form, chiefly in its braces and fastenings. The strings ride upon metallic saddles, fastened to the sounding-board, and have a clear, direct, and uninterrupted vibration from end to end.

The effect of these changes is a great increase in the volume of sound, particularly in the lower octaves, and a long-continued vibration in the entire series, so that even the higher strings emit a prolonged note. The character of the tone is improved in richness, and it has increased brilliancy without a wiry twang. It is a pure musical utterance, unadulterated with conflicting vibrations, and unimpeded by blocks of pine wood.

The firmness and fixedness required to resist the powerful tension of the strings (which amounts to some tons' weight), is obtained by the use of an iron frame forming a sort of skeleton box, of suitable dimensions, with cross bars judiciously arranged and slightly arched where there is the greatest danger of its yielding.

Messrs. Mason, Strakosh, Gottschalk, and other eminent professors, we are informed, have pronounced it a complete success. In fact we have seen a written statement to this effect, signed by the gentlemen above named. Mr. Driggs is about to establish a manufactory in this city. The instrument we tested is the only one, we believe, he has finished.

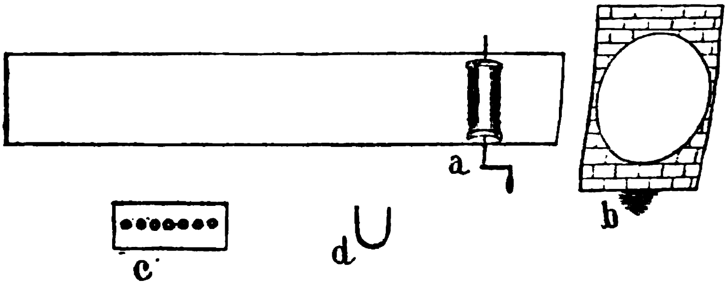
FOR THE PLOUGH, THE LOOM AND ANVIL.

WAX BLEACHING.

BY SAMUEL G. OLMSTEAD.

At Siena, Italy, I visited a *Ceraiuola*, an establishment for bleaching wax. The following is the process:

Twelve hundred pounds of beeswax is put into a large copper kettle and melted. The following rough sketch will show the order of the apparatus for preparing the wax for bleaching:



A is a cylinder of wood, solid, about ⅓ immersed in water. *C* is a bottom view of a tin vessel, into which the melted wax is poured. The holes represented by the dots are small This is placed over the center of the cylinder *a*. *D* is an end view of the same. The fire is applied to the kettle at *b*. The melted wax is dipped out of the kettle into the tin vessel *c*. The cylinder is turned about as fast as a grindstone is ordinarily turned. The melted wax falls in fine streams about the size of small knitting-needles upon this wet cylinder. As it turns a thin ribbon of wax is formed, between ¼ to ½ an inch wide, which floats on the surface of the water. The wheel is turned towards the kettle which produces a current towards the other end of the vat. One man dips out the wax into the tin vessel which is over the cylinder. Another turns the cylinder. A third, with a shovel made of willow twigs, dips out the wax, which is in thin ribbons, into large trays made with willow-twig bottoms, and two men carry it out into the yard, where there are four tables, placed side by side, each 10 feet wide, 60 long, and 2½ high, with tops made of reeds, over which is stretched a coarse canvas cover—upon this the wax is spread. In handling the wax, spreading it, &c., it breaks up into short pieces. Two of these tables hold 1200 pounds, of 12 ounces to the pound. It is spread on the canvas about 1½ inches thick. As it lays up lightly and loosely, the light of the sun penetrates to the bottom. They melt the wax over and make it into thin ribbons in the above manner twice during the process of bleaching. The process occupies thirty days. It is exposed to rain, &c. They prefer to have rain, because, when the sun is very hot, they are obliged to sprinkle water upon the wax to keep it from melting and running together. In this way it is bleached as white as snow.

Any housewife, with a simple apparatus, which she may get up herself, can easily try the experiment on a small scale, and bleach what she may wish to use in candles or for sale.

Immense quantities of wax candles are burned here in the churches, as every Sunday is a feast day, and almost every day in the week. There is no worship of the gods here except with, in, through or by means of wax. Different colored wax is used on different occasions. On some days the yellow, unbleached wax is used. Sometimes colored wax. This is a very economical arrangement, inasmuch as there is no loss of wax. That which becomes soiled, so that it is not a perfect white, is then colored. A church orders from one of these establishments what they require of various sizes, &c. They burn what they need, and the rest is returned and deducted from what they took. They thus pay for the deficit. Only a few inches of a candle which is five feet long are burned. There are five of these large wax establishments in Siena.

The large candles are made by suspending the wicks and pouring the wax over them. They are made round and very true by rolling them under a plank on a table. They are colored by putting in chrome, Prussian blue, &c. They are then hung up in the sun for a time to harden. They make some candles four or five inches in diameter and five feet long. Wax unbleached is worth 3 Pauls, or about 30 cents, bleached, 40 cents for a pound of twelve ounces.

STEAM FIRE ENGINES.

On the 6th instant a trial of Steam Fire Engines took place in the City Hall Park, pursuant to a call of the Common Council of this city, to compete for the following premiums, to wit:

For the best $500. For the second best $300. For the third best $200. The call was answered by the appearance of two full-sized and one small working model; represented as follows:—First a full-sized machine with Cary's Patent Rotary Force Pump by Messrs. Lee & Larnerd, of this city. Second, a full-sized machine, by W. C. & J. S. Burnham. Third, a small model by James Smith. "A mere toy."

At 10½ o'clock A. M. the fires were lighted in the furnaces of the respective engines, and for a short period a dense smoke told conclusively that the war had actually begun. In twelve minutes from the lighting of the fires, Smith's boiler (which by the way we understand had been previously fired up, and fire withdrawn, and came on to the ground with the boiler so hot that the hand could not remain upon it without a very unpleasant sensation), showed steam up sufficient to blow off. Burnham succeeded in making some demonstration, by raising his safety valve to indicate that steam was up, but not until twenty-two minutes had elapsed, and the steam was not then sufficient to thrown a 5-8 stream over 80 feet. He finally succeeded in reaching about a hundred feet with steam, which indicated fifty pounds, but understood to have been something over a hundred.

Messrs. Lee & Larnerd's engine was ready to work with a pressure of 80 pounds in eight minutes, and in twelve minutes was blowing off at 120 lbs.

At this juncture, all three machines were fairly at work, and only one machine (Lee & Larnerd's) seemed to do the work required of a Steam Fire Engine. Burnham's machine labored under a very troublesome difficulty of keeping up a sufficient head of steam, having adopted the old-fashioned, upright, tubular boiler, which, with the dimensions he has brought forward, seemed entirely inadequate to produce the desideratum of communicating the amount of power required to project water to any great distance—having, as we are informed, but 125 feet of fire surface to supply cylinders 9 inches in diameter by 7 3-4 stroke.

The difficulty of getting a sufficient supply of steam from a boiler of such weight and dimensions, with the requisite machinery to complete a Steam Fire Engine, seemed to us to be one of the principal objections that might be urged against their practical utility and efficiency. We understood that Mr. Larnerd, the inventor of the boiler, used in Lee & Larnerd's engine, has devoted a year or more upon this particular and highly-essential point; and, from a careful and critical examination of the construction of his boiler, we are convinced he has obtained a very great desideratum, in so combining the tubes as to produce the greatest amount of heating and fire surface with the least possible weight, and at the same time, by his ingenious arrangements of passing the small tubes through the steam drum, *which render such* efficient aid in staying the circular and vertical plates, has *precluded the possibility* of an explosion. This is a point of great *practical importance*.

The Committee had provided three lengths of hose, *attached to the Croton*, to supply water for the cisterns, which received the suctions of the *different* engines. This supply proved to be insufficient even for Lee & Larnerd's engine alone, for any length of time when working up to her ordinary capacity and throwing two streams, through 100 feet of hose each, with nozzles 1 1-8 inch in diameter, to the surprising distance of 185 feet.

Some weeks since this engine was tried in the Park for three successive days, and produced most satisfactory results, continuing its operations from four to seven hours each day, and at times discharging from 500 to 600 gallons per minute, throwing it through 50 feet of hose, and a nozzle 1¼ inch in diameter 190 feet. To more thoroughly test its projectile powers, a line of hose was stretched from the hydrant near the fountain to the roof of the City Hall, a distance of nearly 700 feet, and there was no hose produced that could withstand the pressure, as a number of outsiders, who were in close proximity, could testify to from a practical experience.

We have been somewhat particular to ascertain the respective merits of Steam Fire Engines, as they have been exhibited from time to time, and in none do we find as many good points as in Lee & Larnerd's engine.

We think there can be no further cavil as to the entire practicability of this machine, and would recommend that all cities adopt it at once. We have recently learned that the city of Cincinnati has seven steam fire engines, on which she exclusively relies as a defence against fires.

COMPOSITION AND FORMATION OF STEEL.

At a recent meeting of the Boston Society of Natural History, Dr. Jackson gave an account of some researches into the composition and manner of formation of different kinds of steel. As commonly known, steel is a combination of carbon and iron, made by heating flat bars of pure iron in combination with charcoal. The carbon is first converted into oxide of carbon, and then unites with the iron as carburent. The result of this process is known as blistered steel, from the bubbles generated by gases upon its surface. Shear steel consists of parallel plates of pure iron and steel welded by folding, and uniting the bars of blistered steel. Cast steel is fused in pots of the most refractory material, and differs from cast iron, which likewise contains carbon, in this respect, that cast iron is a mixture of coarsely-aggregated matters, graphite and iron, whilst cast steel is a chemical combination of carbon and iron.

From the researches of Berthier, it is known that manganese will form an alloy with iron. When iron is mingled with a considerable proportion of manganese, a brittle compound results; but when combined with a very small proportion of manganese, a steel of very fine quality is obtained, which has the advantage over carbon steel; carbon steel becomes coarse when tempered in thick masses, from seggregation of the particles of carbon; but no such troubles arises with manganesian steel. Parties in England have lately introduced excellent wire for piano-forte strings, made of this kind of steel, as well as for cutting instruments and other purposes. In the wire, Dr. Jackson has found 1½ per cent. of manganese, and has established the fact that it resists, to a very remarkable degree, the action of hydrochloric acid. Sixteen years since, Franklinite iron was manufactured by Mr. Osborn into very hard and fine steel. This steel required tempering at a lower heat than carbon steel. Many of our manganesian irons might be manufactured into steel by the simple process of fusion, and a steel of uniform character might be made without previous cementation with carbon.—*Boston Natural Historical Society.*

MARBLE, AND MARBLE SAWING.

Messrs. Editors:—Something more than six months since it was made known, through your columns, that an invention was needed for sawing tapering forms of marble. You accompanied that notice with editorial remarks, in which you prophesied that the required machine would be produced, and encouraged inventors to undertake the work.

Your expectations have been met. Sixteen patents have already been granted for machines of the character proposed, and several of these are now doing satisfactory work. In a short time a number more will be added to the list. With so many earnest, practical minds directed to a point a failure was impossible. This competition, unparalleled in point of success, has had, and must continue to have, the effect greatly to diminish the commercial value of each patent from the price it might have commanded standing alone. As no one or two of these machines can enjoy anything like a manopoly of the public confidence or of actual merit, they will at once be introduced into general use. What the patent right of a machine of exclusive excellence would have been worth may be guessed from the fact that several discriminating inventors, when they had satisfied themselves of their success in the production of a good machine, refused the $10,000 offered, and one of them sold the right of a single machine to one of the largest marble manufacturers in Vermont for $1000. An ordinary gang of saws is worth $1000 per annum, but this invention, by doubling its efficacy, makes it pay for itself the first year. The aggregate value of this invention must be very imperfectly understood by those who are ignorant of the present extent of the marble business in this country, of the present rate of development, and of its capacity for unlimited expansion. The business is yet in its infancy, although it has increased more than a hundred fold in ten years. I have no hesitancy in saying that the entire marble interest in Vermont is now valued by its owners, at not less than $15,000,000! Here is found marble of almost every hue, from the ebony black to the snowy white, and varying nearly as wide in texture. Sudbury, Brandon, and Middlebury have statuary marble equal to the best Italian, as the busts of our native sculptor, Kinney, testify. Roxbury has an inexhaustible supply of the *Verde Antique*, so *identical* in composition and appearance with that hitherto obtained from ancient ruins, that the best judges have mistaken the one for the other. Although *these* quarries have been opened but a couple of years, this new stone has already made its way into the new capitol at Washington, and into the parlors *of the* rich in New-York and Paris. The committee for the erection of the Benjamin Franklin monument in Boston, adopted it for that purpose after subjecting it to the severest tests of heat, cold, and pressure. *The "Vermont Italian"* quarry of Dorset, presents a bold front on the side of the *mountain, half a mile* long by one hundred and fifty feet high, and of a breadth *which ages cannot* exhaust. Rutland alone turns out half a million *dollars worth a year.*

And yet this formation which extends the entire length of Vermont, *runs* also through Berkshire County, Massachusetts, through western Connecticut, and, I believe, into New-Jersey. And probably the marble interests above briefly alluded to, are not a moiety of those which exist in the country.

No sane person, with these facts before him, will say that an improvement which at once does away with one-half of the expense of an important branch of the business is not of great value, and no reasonable person will charge mercenary motives upon those who were instrumental in the production of those improvements. Some inventors, who in their too great haste, seized upon the first idea that presented itself, instead of carefully and experimentally feeling their way to the truth, have made failures; and now finding themselves minus a trifling sum of money for patent fees and models, seem to forget that some waste of property and life always attends a great victory.

There is yet ample room in the marble business for the exercise *of the* inventive faculty; some important improvements are yet needed.

M. M. MANLY, *in Scientific American.*

ENAMELS.

ENAMEL is a variety of glass, usually opaque and colored. It is formed by the combination of different metallic oxydes, with the addition of fusible salts, such as borates, fluates, and phosphates.

The art of enameling has been practised for ages, and the ancients carried it to a high degree of perfection. Specimens of their work yet remain, the composition of which and manner of applying are not now known. It was certainly practised by the Egyptians; and also by the Etruscans, from the time of Porsenna, 600 years before Christ. After remaining almost dormant for centuries, the art was again revived in Italy, in the time of Julius II. At the present time, the Venetians, possess the best processes of enameling, and supply most of the other nations with enamel of every variety of color.

Enamels are divided into two distinct classes, namely, transparent and aque. In the former, all the elements that compose it are subject to an ual degree of liquefaction, and are thus converted into crystal glass. In the her, some of the elements resist the action of heat in such a manner that eir particles retain sufficient aggregation to prevent the free transmission of ht.

Enamels of all kinds and colors are produced by different combinations and ocesses; such as yellow, green, blue, red, violet, &c. The simplest enamel, d the one that serves as the basis of most of the others, is obtained first by lcining a mixture of tin and lead, in proportions varying from fifteen to ty parts tin to one hundred of lead. This alloy has such an affinity for ygen, that it may be calcined in a flat cast-iron pot, and at a temperature t above a cherry-red heat, provided there is not too much tin in the compo- ion. As the oxyde is generated, it is drawn off to the sides of the metal, w pieces of the composition being thrown in, from time to time, till enough the powder is obtained. When the powder is sufficiently cold, it is ground a mill, levigated with water, and elutriated. After these processes, it is ixed with silicious sand and alkaline matter, or sea salt. It is then put into a ucible, or laid on a stratum of sand, quicklime, or wood ashes, and placed a pottery kiln. It then undergoes a semi-vitrification. This serves as a sis of almost every enamel; and by varying the proportions of the different mples, different kinds are obtained.

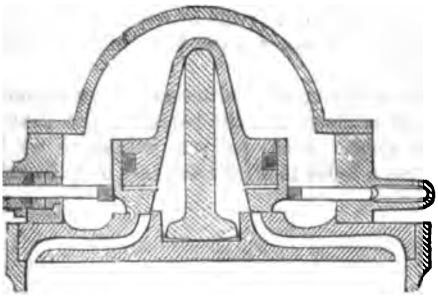
Enamel painting has been carried to a high degree of perfection. The lors used are prepared from oxydes of different metals, melted with some trescent mixture, laid on with a fine brush, the medium being oil of spike, some other essential oil. It requires the utmost skill in using these mix- res, as they do not produce the coloring till after the article has been bjected to the process of firing.

Various processes have been discovered for enameling leather, and differ- it metals, such as iron and copper. Cast-iron vessels are enameled so that ie enamel will not crack upon being subjected to heat.—*Pen and Lever.*

IMPROVED MEANS OF RELIEVING SLIDE VALVES FROM PRESSURE.

INVENTED BY J. K. FISHER.

The novelty in this plan consists in the means by which the piston in the ack of the valve is supported and carried. In order to explain this clearly we first describe the means heretofore used for this purpose



The piston has sometimes been in the cover of the steam-chest. But if the valve is ever lifted from its seat, as it may be in a locomotive, a piston in the cover will be forced outward, and held so that the valve cannot fall back to its seat when the pressure beneath it ceases; this method is, therefore clearly admissable in locomotives.

When the piston is in the back of the valve, there is a link or hanger connected to it, and also to the steam-chest cover. If this hanger were indefinitely long, it might not sensibly affect the action of the piston; but as it is impracticable to give it much length there is always this difficulty—that, as the lower end of the hanger moves in a curve, the piston slides up and down in the cylindrical cavity of the valve; and as the direction of the hanger is oblique when the valve is not in the middle of its travel, it strains towards the center, pressing the piston alternately against the forward and back halves of the cylindrical cavity; thus rendering it liable to considerable wear, as the sliding motion takes place.

To remedy this, Mr. Fisher places under the piston a sector of a wheel, which rolls upon a planed way in the exhaust passage. The cut shows the arrangement. In the back of the piston there is a sort of hollow steeple, to allow room for a sector or rocker of long radius, so that the friction and wear may be slight. And to accomodate this steeple there is a dome in the steam-chest cover. The piston may have packing of a very simple kind, as there will be so little wear that no provision for it need be made; and it may be ground in with emery.

It is obvious that this sector will carry the piston *in a straight line; and* there will be no slide of the piston in its cylinder, *except when the valve is* lifted; and that the piston will not be pressed against either side of its cylinder, except with the slight force due to the friction at the axis, and the rolling resistance at the rim or foot of the rocker. Hence, if the packing be well fitted at first, there will be no danger of its becoming leaky, or unsteady from wear.

The advantages of relieving the valve from the pressure on its back are considerable. First, power may be saved. A writer in the London *Artisan*, a few years ago, showed that, if the co-efficient of friction be taken at 2, which is the usual estimate where oil cannot be kept in its place, the motion of the valves of a first-class locomotive of 750 horse power, would consume 35 horses' power, or more than 4.6 per cent. of the effective power of the engine. Now as .85 of the pressure may be thrown upon the piston, we may, after due allowance for friction of the rocker, assume that .8 of this power can be saved, and therefore that the power to work the valves may be reduced to a fifth of what is under full pressure; or, 7 horse power, less than 1 per cent. will suffice. Second, the exhaust passage may be made much wider, which will allow freer egress to the steam and relieve the piston from a part of the back-pressure. Third, the steam ways between the ports and cylinder may be shortened, so that less steam will be lost in them. Fourth, the valve gear, by being relieved from eight-tenths of its strain, will suffer less wear, and be more easily handled, and keep in better order; and it may be made lighter and less expensive. Fifth, the liability to strain the parts by compression when reversing, or if water is in the cylinder, is greatly reduced; as the area of the valve minus the area of the steam ports.

The object of publishing this is to induce some one to try it, on an engine; on condition that he shall have a fair proportion of the patent, if the device works well, and a patent can be obtained. If any party is willing to try it on such terms, he is invited to address a letter to Mr. Fisher, care of *Colburn's Railroad Advocate.*

Miscellaneous.

Musical Instruments for Churches.—Messrs. Mason & Hamlin, of Boston, have invented and are now manufacturing a Reed Instrument on the principle of the Melodeon, with great and important additions and improvements. It is called the Organ-Harmonium, and has the power and variety of a pipe-organ of double its cost, and contains two manuals and eight tops, as follows: Dulciana, Diapason; Hautboy, Bourdon, Flute, Principal, Expression, and Coupler. Musicians and organists who have seen and heard his instrument, express themselves not only pleased, but surprised at its power and variety of tone and effectiveness.

The chief object in the construction of this instrument seems to have been o produce an instrument adapted to the use of the many religious societies, whose means will not allow of the purchase of an expensive organ. Messrs. M. & H. think they have succeeded in making an instrument which combines all of the desirable qualities of a pipe-organ that costs $700 or $800, besides many others not to be found in an organ of that price. The effect produced from its full chorus is almost precisely similar in a small or medium-ized church to the effect of the full chorus of a large-sized church-organ in a large church; the volume of tone being massive, full, round, well-balanced and church-like. It has two great advantages over the ordinary pipe-organs, which are especially a desideratum in country towns and villages. One of hese is its property of remaining for many years in good tune, and the other s the much-lessened liability of getting out of order. Having two rows of keys, it is capable of many beautiful solo effects, with subdued accompaniments, which renders it a valuable instrument. It is especially adapted for use in vestries and lecture-rooms. It is a beautiful musical instrument, with ose-wood case, fine finish, and a prompt utterance of tone—that is of a sweet, even, and pure quality.

Commerce with Africa.—It would seem that American merchants would do well to give their attention to commerce with Africa. In four years the exports of palm oil alone, to Great Britain, have increased about fifteen thousand tons, amounting last year to 30,000 tons total exportation to that country, value $8,000,000. A steamer recently conveyed from Cape Coast Castle 8000 ounces of gold, equal to $140,000. Other articles of African produce are also coming rapidly into favor and use in England and France. In the course of ten years there will be, beyond a doubt, a very large and highly lucrative commerce between the Republic of Liberia and the Kingdom of Great Britain.

The Camels.—The United States store-ship *Supply*, Lieutenant Porter commanding, which was sent to the Mediterranean for a cargo of Camels for the use of the army, secured thirty-five of these animals, and had reached Kingston, Jamaica, on the 13th ult., on her way to Indianola, Texas. She has reached her destination before this.

The Indianola *Bulletin* of the 12th ult., says that the workmen are now busy in erecting an enclosure for the camels, which will cover ten acres of ground. It is proposed to keep the animals at that place several months to recruit them. Some of them were presented by the Viceroy of Egypt to our

Government, but most of them were procured by Major Wayne and Captai Porter, under the appropriation made for the purpose at the last session o Congress. Some Arabs accompany them to take care of them.

Prince's Protean Pen.—We are still in the constant use of this capital pen. As it is Princely in its origin and name, so it is princely in its relation to other pens, whether we regard the ingenuity displayed in its construction, its convenience, or its capacity. An improvement has been lately made, more particularly desirable, we should think in the larger sizes, by which the flow of ink may be regulated, and even entirely shut off. We have some experience in the use of this improvement, and we think it must add to the value of that which we before regarded as indispensable to all who are in the habit of writing.

NEW BOOKS.

The English Bible; History of the Translation of the *Holy Scriptures into the English* Tongue, with specimens of the old English Versions. By Mrs. H. C. Conant, author of Translations of Neander's Practical Commentaries. New-York: Sheldon, Blakeman & Co., 1856. 404 pages, 12mo.

In this volume Mrs. Conant has set forth the many claims of the King James's Version to the confidence of the public, showing its antecedents, the conditions on which that translation was undertaken, the influences which operated in securing fidelity in the work, &c. In doing this, she traces the origin and history of the early English versions: Wickliffe's, Tyndale's, Coverdale's, Taverner's, Cranmer's, the Genevan, the Bishop's Bible, the Douay Bible, and the common version. She performs this service with great ability and fairness, and her conclusion is that King James's Version was translated under the most favorable circumstances, by the most profound scholars of the age, and in a manner to claim the confidence of all. It seems very singular that she should append a distinct and separate chapter to this complete historical examination, in which she assumes that the great scholars of the present day have or can shed such brilliant light over the sacred page, as to demand for it another new translation, that shall be up to the times. It seems to be "annexed" to the work after it was completed, after the manner of our politicians, without any due preparation. The conclusion of this one chapter is quite open to criticism. The body of the work is far too able to court the pen of any critic for any other service than the highest commendation.

A System of Moral Science. By Laurens P. Hickock, D.D., author of Rational Pscychology, Empirical Pscychology, &c., Union College. New-York: Ivison & Phinney, 1856. 12mo., 418 pages. $1 25.

This new firm composed of gentlemen, each well experienced in his trade, are doing a very great service to the public. Their issues are of the very highest order. Among these is the book, the title of which is here given. It is designed as a college text book. Its plan is comprehensive, the topics or sub-titles are wisely selected or classified, and concisely but ably treated, and in its progress it evolves a thorough, entire system of principles, which include the whole range of moral obligations.

A New Method of Learning the French Language, &c. By Louis Fasquellé, LL.D., Professor of Modern Languages in the University of Michigan. 27th edition. New-York: Ivison & Phinney, 1856. 499 pages, 12mo. $1 25.

This course was first published, we think, in 1851, and the fact that it has already reached its 27th edition is proof of its peculiar adaptation to the wants of the community. It is both analytic and synthetic in its modes of instruction, being formed on the plan of Woodbury's method, with German. It is designed to aid the scholar in reading and speaking and composing French. It is admirably adapted to these objects, and, indeed, it is the system now in extensive use in the best institutions of the country.

Napoleon. Par Alexandre Dumas. For the use of Colleges and Schools. New-York: Ivison & Phinney. 1856, 274 pages, 12mo. 75 cents.

This is one of the volumes of Fasquelle's French Course, and is published in a style highly creditable to the publishers. It is liberally furnished with notes and with references to the "new method" just described; so that the reader need be at no loss for the solution of any difficulties of idiom or of any *irregularity*, which he may encounter.

Chefs-D'ouvre de Jean Racine. Prepared for the use of Colleges and Schools. By Louis Fasquelle, LL.D. New-York: Ivison & Phinney. 1856. 320 pages, 12mo. 75 cents.

This volume also belongs in "the course" of the learned professor Fasquelle, and is a part of the "new method." The notes, explanations and references are similarly arranged to those of "Napoleon." The work itself is one of great interest, and contains the very gems of the French Drama, the compositions of one of the most popular and most able of all French writers, to wit, Les Plaideurs, Andromaque, Iphigenie, Esther and Athalie. The notes and references are very numerous.

Telemaque, another volume of the series, was noticed in our journal when it was first published.

The American Debator, being a plain exposition of the principles and practice of public debate. By James N. McElligott, LL.D. 3d Edition. New-York: Ivison & Phinney. 1856. 12mo, 312 pages.

This volume contains a thorough system of parliamentary law, of vital importance to every one who presides in a public meeting, and furnishes a great deal of valuable information, besides the laws which regulate all legislative or deliberative assemblies; it covers the entire subject of debate in all its aspects. It has reference to personal bearings, gestures, instruction, forms of address, styles, &c., &c. It is a thorough consideration of what might occupy large volumes. Numerous specimens are given in illustration of its teachings.

Vassall Morton, a novel. By Francis Parkman, author of the history of the "Conspiracy of Pontiac" and "Prairie and Rocky Mountain Life." Boston: Phillips, Sampson & Co. 1856. 414 pages.

This book is written in a off-hand, animated style, and embodies a rather wild but very entertaining story.

Forest and Shore, or Legends of the Pine Tree State. By Charles P. Haley. Boston: J. P. Jewett & Co. 1856. 420 pages.

This entertaining volume comprises five separate stories, well-written, some of them chiefly historical, others only founded on fact. They will fill up an occasional hour of leisure with a very pleasant occupation.

Third Annual Report of the Secretary of the Massachusetts Board of Agriculture, with Reports of Committees, &c., &c. 2d Series. 1856.

We have received this valuable report from the indefatigable Secretary, Mr. C. L. Flint. It is a valuable addition to the "permanent documents," which belong in every farmer's library. It is also got up in a superior style.

The Mechanics' Manual, a pocket companion, for working Carpenters, Joiners, Masons, Bricklayers, Painters, Glaziers, Builders, Slaters, Plasterers, Pavers, Planters, &c., with forty-two woodcut diagrams. By Oliver Byrne. New-York: J. N. Fairchield & Co. 1856. Price 50 cents.

This little work, in pocket-book form, contains 128 pages of useful cuts, tables, problems, &c., by a civil and military and mechanical engineer, and just suited to the wants of the classes described. It is remarkably well executed.

Colomba. By Prosper Merimee. Translated from the French. Boston: Phillips, Sampson & Co. 1856, 12mo., 310 pages.

This translation of "one of the most brilliant of French writers," gives a most graphic, life-like illustration of life and manners in Corsica. *The heroine is a most remarkable character*, viewed as a conception of the author, and, *if regarded as a historical sketch*, the interest with which she is regarded is not *diminished but materially strengthened*. It is unlike any other tale we have ever perused, and, *considered in either of the lights to which we have referred*, the volume *richly deserves an extensive sale*.

Berenice; a Novel. Boston: Phillips, Sampson & Co. *1856. 332 pages.*

This story is in the form of an autobiography. *The scenes which it describes*, whether in the life of the heroine or of other persons, taken by themselves, are *very* naturally drawn, and the story abounds with incidents which greatly interest every reader. We are not certain, however, that all leave a good impression on the mind, nor even that some of them are not positively harmful in proportion to the ability displayed by the author. For a wife to be romantically "in love," as the phrase goes, with a stranger at first sight, however careful she may be of personal improprieties, is not likely to be commended or excused even, by readers of the stricter sort. But the book lacks nothing in interest, in style is unexceptionable, and the work is executed in a manner worthy of the distinguished gentlemen who publish it.

The New Age of Gold; or, the Life and Adventures of Robert Dexter Romaine. Written by himself. Boston: Phillips, Sampson & Co. 1856. 403 pages.

We have read this volume with unusual interest. The path is a new one. The plan is formed on no model that we have seen, although the author must have read Robinson Crusoe. It is not a rehash of that story, however. We fully agree with the publishers, that Alice is one of the most finished pictures of female excellence we have ever seen. Many of the scenes are novel, often deeply exciting the sympathies of the reader, though told in a marvellously quiet way. The note of the "publishers" at the close is, perhaps the *coolest* piece of fiction we have ever seen. They suppose that every reader will wish to know the final result of the hero's efforts in finding his lost island; and we certainly do. Please send us that "paper," gentlemen, as soon as it is off the press. The portrait we have entire confidence in.

Way-Side Songs. By Edward C. Goodwin, author of Hampton Heights. New-York: Mason Brothers. 1856. 185 pages.

Mr. Goodwin is an enthusiastic lover of nature, and has a quick perception of the peculiar traits of the scenes he looks upon. Nor is he deficient in the power of language. Some of his stanzas are exquisitely beautiful. This little volume does honor to his head and his heart, and the execution of it is highly creditable to the publishers. It is very handsomely printed, and is worthy a place in the list of gifts for the holidays. It consists chiefly of simple ballads, interspersed with some of the more stately forms of poetry.

The Earnest Man; or, the Character and Labors of Adoniram Judson. By Mrs. H. C. Conant. Boston: Phillips, Sampson & Co. 1856. 498 pages.

We need only to announce the name of this distinguished lady to give the literary public an assurance of a scholarly and able performance. Dr. Judson is also too well known, and his position as the first missionary and a faithful and efficient laborer, was too important and too affecting, to be viewed with indifference. This volume cannot fail, therefore, to be read extensively and to be highly appreciated.

The American Pulpit; Sketches and Biographical Description of living American Preachers. By Henry Fowler, Professor of Political Economy at the University of Rochester, with portraits on steel. New-York: J. M. Fairchild. 1850. 515 pages, price $2 00.

The selection of "Living Preachers" in the volume includes not a few of those who occupy a foremost place in the public mind. So far as we know the men, not one of them but is eminent for talent or for eloquence. Some of them as forensic orators are first even among the foremost. The peculiar views any of them may have on the topics of the day cannot affect this point. But as men whose names by this very peculiarity are so familiar to the whole country, the selection is peculiarly happy. The strong points of each are judiciously drawn by the author, and most of them are represented by a remarkably accurate portrait; and we can vouch for all except one, Dr. Sommers, whose face we have never seen. Portraits are given of Dr. E. N. Kirk, Dr. O. Baird, Revs. W. H. Milburne and H. W. Beecher, Dr. Sommers, Dr. T. L. Cuyler, Dr. S. H. Cox, Dr. S. H. Tyng, and Rev. Albert Barnes.

The friends of each of these gentlemen will not be disposed to say that the sketches are not judiciously and skilfully drawn. Twenty-one sketches are given, so that each, of necessity, is short.

A Shorter Course with the German Language By W. H. Woodbury, author of, &c. 6th edition. New-York: Ivison & Phinney. 1856, 230 pages.

This admirable work is on the same plan as the larger one, published in 1848, and which is the book now in extensive use in this country. It has no rival in the market.

NEW MUSIC.

Wm. Hall & Son have recently issued the Minnehaha Polka. By Francis H. Brown. Very brilliant and very pretty.

Six Nocturnes. No. 1. By Wm. Vincent Wallace. Worthy of the eminent author, and capital study for the pupil.

The Banjo. By L. M. Gottschalk. A grotesque fantasie, which pays well the time required to manage it, and is a very popular piece.

List of Patents Issued

FROM TERMINATION OF PREVIOUS LIST TO MAY 6.

Andrew Allen, Wilmington, Del., improvement in power looms.

Edwin Allen, Glastonburg, Conn., improvement in calendar clocks.

J. A. Ayres, Hartford, improved machine by which cattle raise water for themselves.

Andrew J. Barnhart, Hartfield, N. Y., improvement in securing and releasing blocks of lasts.

Wm. W. Binney, Seneca Falls, improvement in coal stoves.

Henry E. Canfield, New-York, improved arrangement of means for operating cut-off valves of steam engines.

Jacob Cohen, New-York, improvement in the arrangement of grates and dampers for chimneys.

J. B. Creighton, Tiffin, Ohio, improved stump extractor.

Levi Cromwell, Baltimore, improvement in omnibus register.

Abram J. Gibson, Clinton, Mass., improvement in attaching thills and poles to vehicles.

Abel H. Grennell, Springfield, Vt., improvement in mode of protecting vines.

Samuel E. Hartwell, New-York, improvement in frames for mosquito nets.

Wm. B. Hatch, Elmira, improvement in straining marble saws.

Nathaniel Hayward, Colchester, Ct., improvement in manufacture of India rubber.

J. B. Haviland, Galveston, improvement in machine for sawing marble in obelisk form.

Jonathan J. Hilliard, of Fall River, improvement in spreading rollers for stretch cloth.

William Hinman, Elkart, Ind., improvement in bedstead fastenings.

William H. Hovey, Springfield, Mass., improvement in grain and grass harvesters.

John Jones, Brooklyn, improvement in candle cutting apparatus.

Simeon Ingersoll, Green Point, N. Y., improvement in hay and cotton presses.

Charles Kirchoff, New-York, improvement in electric telegraph.

James Kline, jr., and Simon V. Kline, Chicago, improvement in safety platforms between railroad cars.

George W. La Baw, Jersey City, improvement in hoisting drums.

Palmer Lancaster, Burr Oak, Mich., improvement in fire-arms.

Marshall Lefferts, New-York, improvement in metalic bedsteads.

Wm. H. Lyman, Newark, improvement in whip sockets.

Wm. Loyd, Philadelphia, improved stereoscope case.

Geo. Marty, Pottsville, improvement in apparatus for hoisting coal.

B. T. McCreary, New-York, double-acting catch for reversible backs for settees.

W. J. McIntosh, Savannah, improved implement for reaping rice.

Alexander Sprague, Mobile, improved apparatus for feeding furnaces with fuel.

M. Newmen, 2d, Oak Hill, N. J., improved bed hasp.

H. W. Oliver, Witneyville, Conn., improved floor clamps.

Wm. Newbrough, Mohican, O., improvement in churns.

Jos. Summers, Raleigh C. H., Va., improved wheel hub.

Joel H. Tatum, Baltimore, preparation of oil ground to receive photographic impressions.

Wm. D. Titus, Brooklyn, *improvement in vault* covers.

Benj. T. Trimmer, *Parma, N. Y.*, improvement in railroad brake.

Maurice Vergnes, *New-York, improvement in* electro-magnetic *engines.*

Dewitt C. Warner, Wikesbarre, *improvement in* wigs.

Henry H. White and Edward A. Gray, East Poultney, improved stone marble saw.

Geo. P. Wilcox and William Buler, Little Falls, N. Y., improvement in apparatus for teaching phrenology.

Gilbert L. Bailey, Portland, improved door spring.

Wm, H. Bramble, Cincinnati, improvement in grain weighing machines. Ante-dated April 8, 1856.

Lebbin Brooks, Great Falls, N. H., improvement in adjusting the angle in machines for sawing marble obelisks.

J. F. Downing, Erie, improved method of hanging and elevating or depressing farm gates.

John Ericsson, New-York, improvement in air engines.

Geo. G. Griswold, Carbondale, *improved door* springs.

R. L. Hawes, Worcester, improved diaphragm fluid metre.

Wm. H. Hovey, Springfield, Mass., improvement in harvester-raking attachments.

Wm. A. Kirby, Buffalo, improvement in grain and grass harvesters.

Jas. McLellan, Detroit, improvement in repairing railroad bars.

O. W. Minard, Waterbury, Conn., improvement in making brass kettles.

John North, Middletown, Conn., machine for folding paper.

George W. Pruyne, Mexico, N. Y., improved machine for raising and creasing leather straps, &c.

E. H. Stearns, Cincinnati, improved head and tail blocks for saw mills.

Shubael Wilder, New-Castle, Pa., improved puddle ball squeezer.

R. F. Wolcott, Claremont, N. H., improvement in weighing scales.

Thomas A. Fisher, Lancaster, O., assignor to himself and J. R. Cooper, of same place, improvement in seeding machines.

Benj. James, Worcester, assignor to Roswell L. James, of same place, improved awl-haft.

James M. Kern, Morgantown, Va., assignor to Enoch P. Fitch and Isaac Scott, of same place, improved method of adjusting circular saws for concave or convex work.

Julius T. Buel, Whitehall, N. Y., improved fishing tackle.

George J. Bitler, Lancaster, Ohio, improvement in seeding machines.

Warren S. Bartle, Newark, N. Y., improved machine for sowing fertilizers.

Alexander Buchann, New-York, improvement in balance and slide valve for steam engines.

Gustav A. Blittknowski and Frederick Wm. Hoffman, New-York, improvement in revolving fire-arms.

Andrew Caleman, Perth Amboy, improvement in receiving magnets for telegraphs.

John Culver, Baltimore, improved waste device for hydrants.

Patrick S. Devlan, Reading, improvement in brick machines.

John B. Erb, Strasburg, Pa., improvement in door locks,

George Esterly, Heart Prairie, Wis., improvement in cultivators.

Abraham Fitts, Worcester, improved machine for digging peat.

Samuel H. Gilman, New-Orleans, improvement in sugar evaporators.

Christian Haas and John C. Noll, Chicago, machine for driving spokes.

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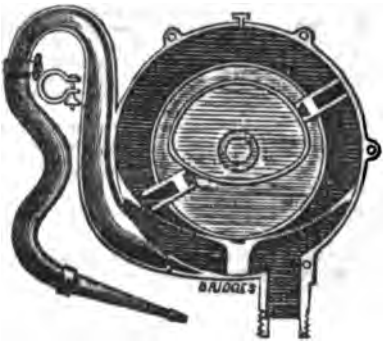

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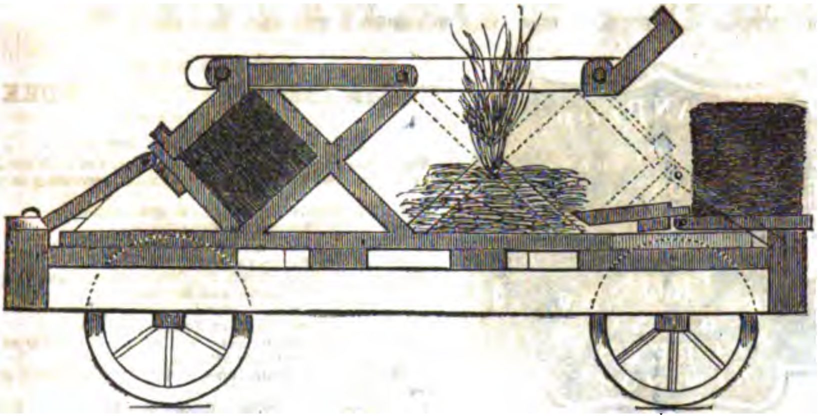

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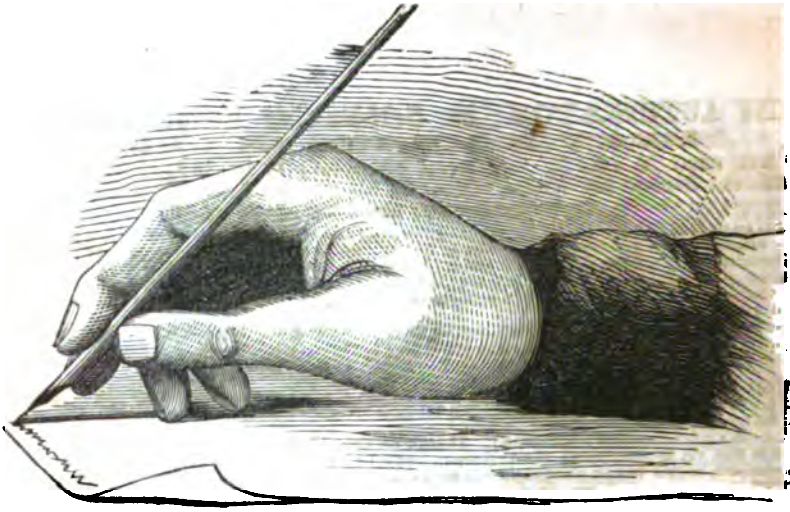

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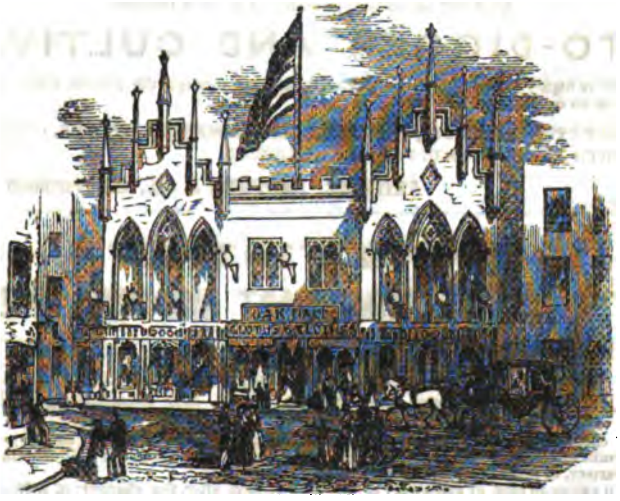

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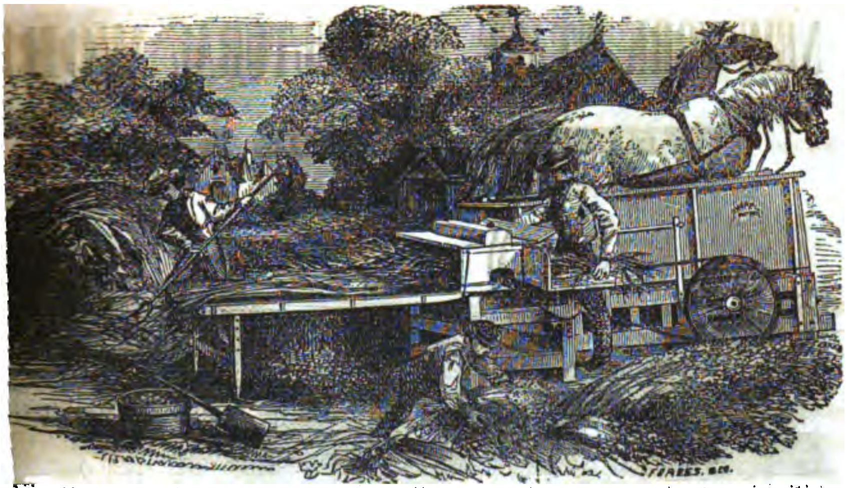

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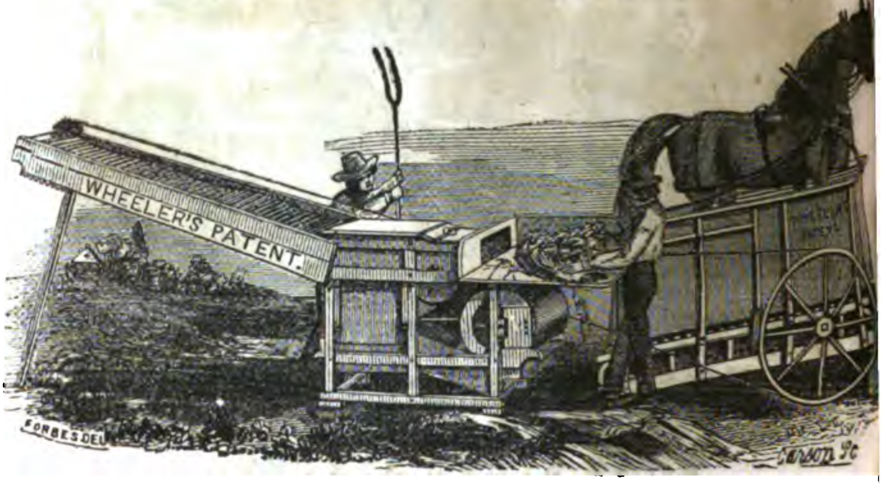

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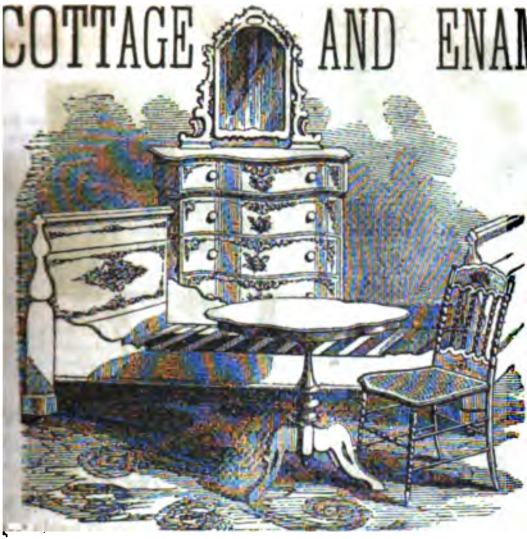

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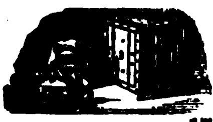

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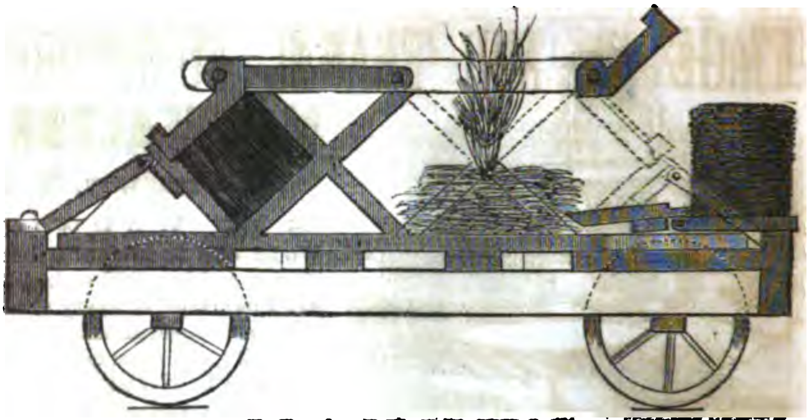

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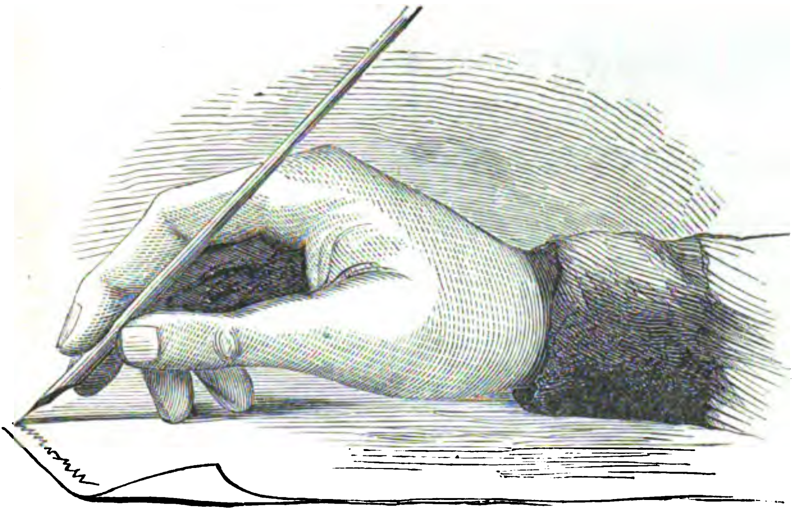

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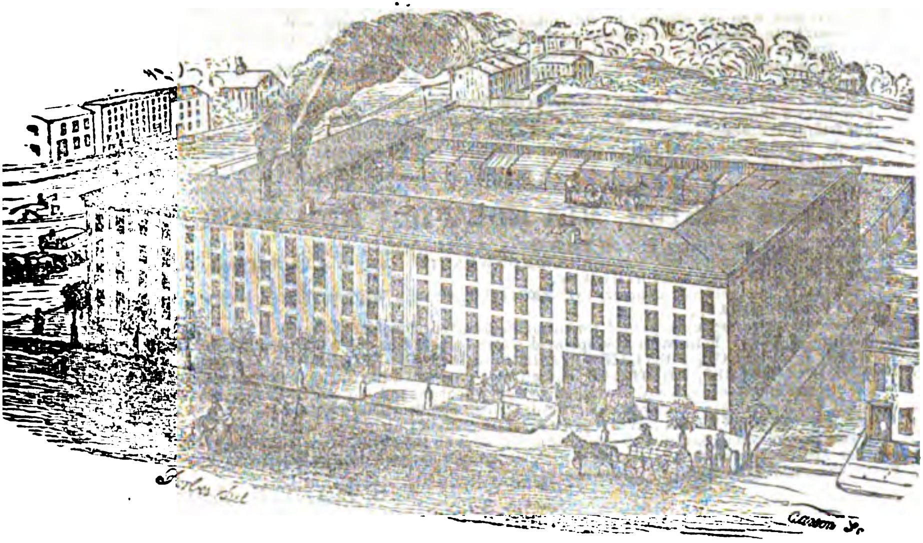
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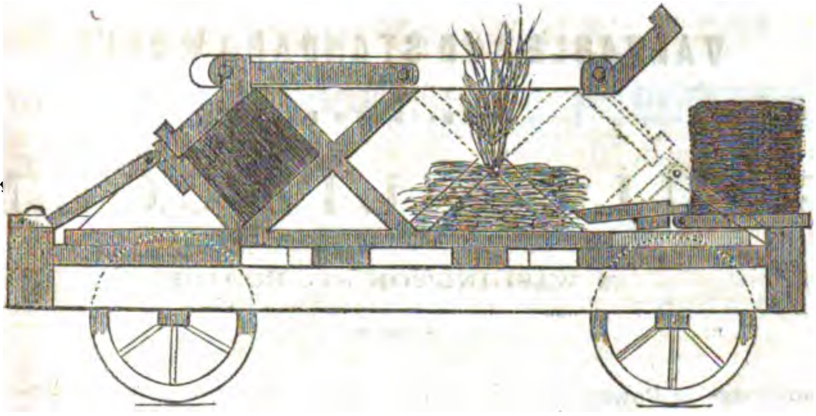

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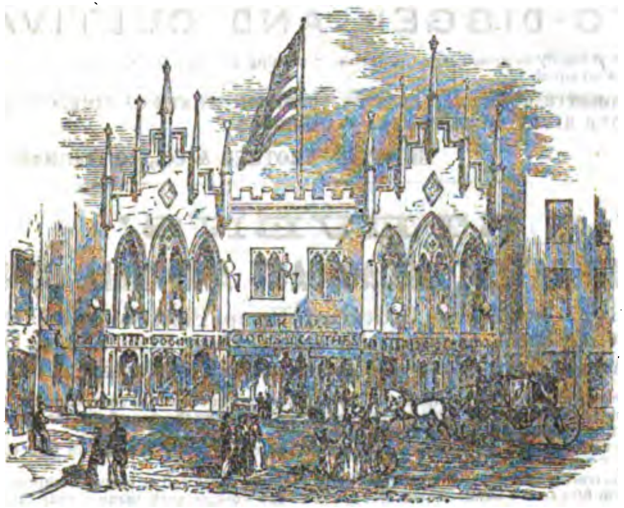

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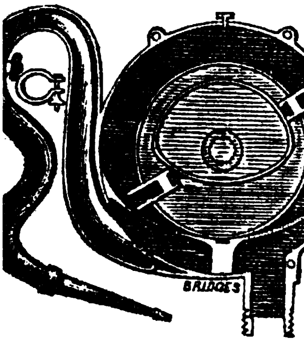

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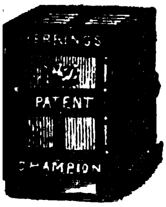

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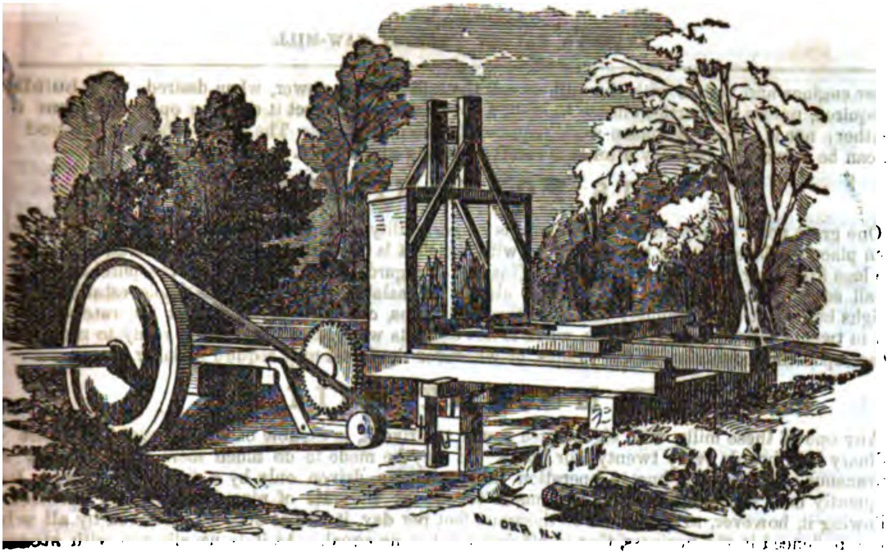

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en put in operation in different parts of the United States, and their value and efficiency thoroughly
ted by practical experiment. It has been examined by hundreds of the best mechanics and ma-
inists in the country, and it has been admitted by all that, for cheapness, durability, and efficiency,
is far superior to anything of the kind ever before produced, and that it must eventually take the
ce of nearly all the mills now in use. We purpose in this paper to give a plain statement of its
nstruction, its advantages, prices, and all particulars which those interested would wish to know
fore purchasing.

ITS CONSTRUCTION.

It is composed of eight pieces of timber, from five to eight feet long; four pieces of plank, from
ur to six feet long; and about fifteen hundred pounds of iron; besides two long bed-pieces, a car-
ge, some small wooden fixtures, pulleys, etc. The common up-and-down saw, six and one-half or
ven feet long, is used, without sash-gate or muley, and will saw timber of the largest or smallest
ze. It is so very simple in its construction that it has but few bearings, and consequently but
tle friction, and will therefore require much less power to drive it than the more complicated mills
w in general use. As much of the cumbrous machinery of other mills, such as large heavy frames,
sh-gates, etc., is dispensed with in this, it is much less liable to get out of order; while its sim-
licity enables any one of ordinary mechanical ability to repair or build it. The amount of repairs
quired with fair usage is of insignificant import. Another advantage of this mill is, that its work
superior in smoothness and straightness, and that it cuts away less of the timber than most other
ills.

OUR EIGHT-HORSE POWER.

The motive power usually sold with it is a simply-constructed, yet efficient and durable, portable
eam-engine of eight-horse power, with cylinder from seven to eight inches in diameter, and fifteen-
ch stroke, together with locomotive boiler, about twelve feet long, with thirty-two 2-inch tubes, six
et long. The front, or fire-box, is three and one-half feet in diameter, and four feet long. The
eat and tubes are all heating surface. The engine and boiler together weigh about 4000 pounds.
hey are constructed especially for this mill, and are of requisite power to drive it with sufficient
pidity to cut over 6000 feet of ordinary inch boards in every twenty-four hours. We supply

larger engines and boilers with the mill, or sell the mill without power, when desired. No building is required, unless the parties choose to erect a rough shed to protect it and the operators from the weather; nor is there any mason-work required for the machinery. The whole affair, as shipped by us, can be at work in one day after it is received at any given place.

ITS PORTABILITY.

One great point of superiority in the mill is its portability—the ease with which it can be moved from place to place—taking the few pieces with which it is composed, to the logs, instead of hauling the logs from long distances to the mill. This fact in regard to the mill renders the purchase of it, in all cases, a safe investment, as it will always be salable property. The whole establishment weighs but about 6500 pounds; and with three ox-teams, can be easily moved at the rate of from ten to twenty miles per day. Thus, when it has done its work at one place, it *is ready to move on* either upon the mountains, in the valleys, or wherever the forest may require its labor.

HOW MUCH IT WILL DO.

Any one of these mills, with eight-horse power to drive it, is capable of cutting over 6000 feet of ordinary inch boards every twenty-four hours. It may be made to do much *more than this,* by an extraneous effort; in fact, one in operation near this city, driven only by a five-horse power, has frequently been timed by a watch, and made to saw at the rate of nine hundred feet per hour. Allowing it, however, to cut but three thousand feet per day, it will at once *be perceived* by all who are experienced in the business, that in efficiency it has no equal. *As it is usually run with steam-power,* the delays which other mills are often subjected to, waiting *for water, or having too much water,* repairing dams, etc., are entirely avoided.

PRICES.

We furnish these mills, with bolts, screws, belting, forty-eight feet of segments for carriage, and everything all complete, excepting two long bed-pieces and the carriage, for

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The segments we furnish for carriage are sufficient to saw timber twenty-four feet long; but when it is desirable to saw timber more than that length, an extra charge will be made for extra length of segments. A draft, carefully explained and numbered, will be sent with each mill, so that the parts may be readily and accurately put together. We furnish the mill as above, with an eight-horse power engine and boiler, all new and complete, manufactured expressly for this mill, and sufficient to drive it with any rapidity, for

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The above are our lowest cash terms, (the right to use being in all cases included,) and we confidently believe that the universal verdict of the practical saw-mill men of the United States will be, that it is the cheapest mill in the world. There is hardly a county on this continent, where one of them, put in operation, will not more than pay for itself in less than two months. Some of those now in operation in the Western States are clearing over forty dollars per day over all expenses.

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o those who would wish to buy Rights, we would say, that this is one of the best patents that be found. There are six thousand saw-mills built in the United States every year, and this ent will greatly increase the number; for thousands can now have a mill who could not when cost of a steam mill was four or five times what we charge for this one.

he price of Rights ranges from five hundred to two thousand dollars per county, depending upon amount of lumber and population.

or mills and machinery, the money must be received or deposited here in New-York before they shipped. Purchasers can arrange with some banker in their neighborhood to make the necessary osit here for them. Most of our orders for mills are now coming from places where some entersing man had set one in operation, and tested it to the satisfaction of the lumbermen of the region. A few months since, one of these mills was purchased by Mr. J. O. Taylor, of Freeport, Illinois; ce which time, ten others have been sold to parties in that vicinity, who had seen Mr. Taylor's ll, all of which are now in successful operation.

The first day's operation of a mill sent to Lansing, Mich., brings us the following letter and order:

Lansing, Jan. 16th, 1856.

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Gents:—Enclosed, you will find draft for $1250 on Bank of Commonwealth, for which, I want u to send me a Mill, with eight-horse power, all complete, precisely like the one I purchased of u, and to send it immediately, as I have agreed to have it running by the 25th of February. My ll is all correct, excepting that some of the castings were rough. This Mill is sold in consequence having mine running, which, I am happy to say, works admirably. This day she gave her trial ip; and if she did not walk through the log, then I should not say so. There were some fifty perns to witness it. I shall, probably, order another next week. Send by the same Company as you nt the other, so that I can get it just as quick as possible. I expect to order as many as eight ore Mills before the first of June.

Yours, truly,

JESSE S. BUTLER.

Another letter, from Spring Hill, Mo., says:

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Your Mill, sent to this place, started to-day, in presence of several hundred spectators. During e first five hours of its operation, it sawed over twelve hundred feet of hard oak inch boards. A rge number of them will be wanted in this vicinity.

Yours,

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Respectfully,

G. HOYT.

* * *

We might give many other similar facts and letters; but the above will answer all purposes.

Of all the parties to whom mills have been sold, not one has expressed dissatisfaction, or regretted making the purchase; but, from all sections where these mills have been tested, we are having calls for more.

Strangers visiting the city, are respectfully invited to call at our office, and we will direct them to one of these mills in operation in this city, which is now being visited by large numbers every day. We would suggest to those living at a distance, and who desire a personal examination, that they write to some friend in New-York to make the investigation for them. One of these mills may also be seen in operation at St. Louis, by calling upon Dr. A. G. Bragg, of that place.

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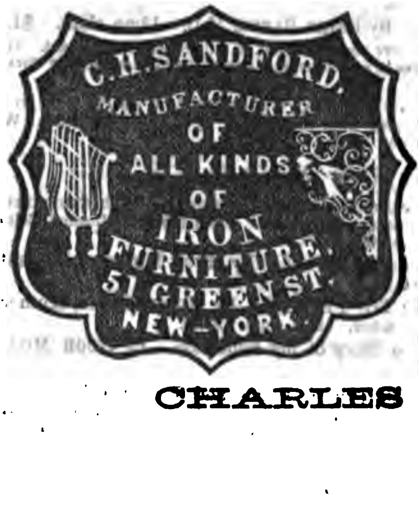

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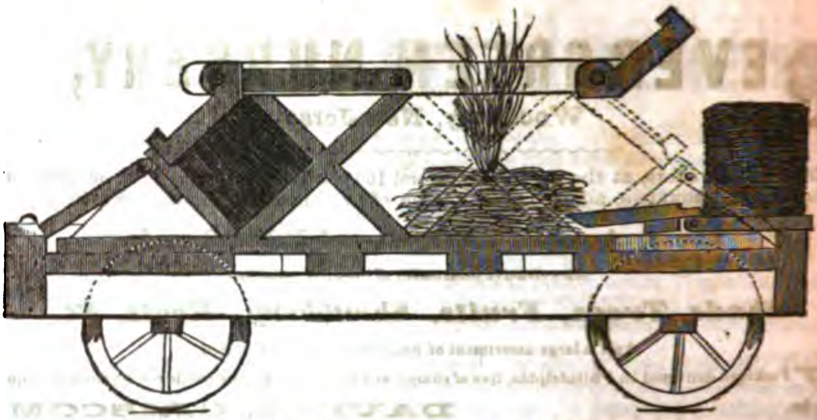

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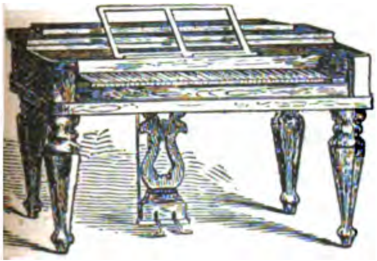

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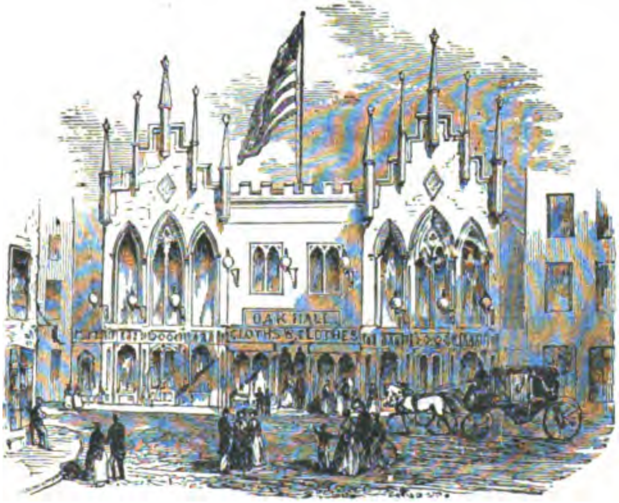

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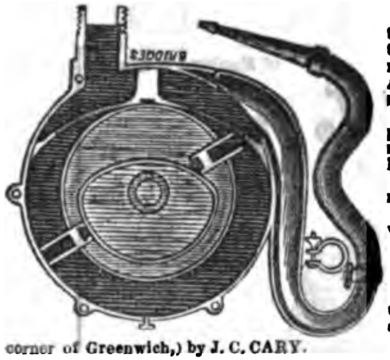

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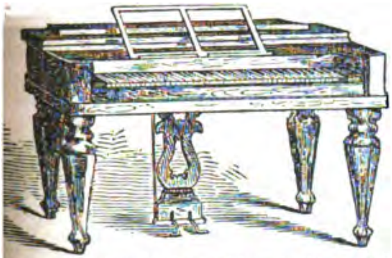

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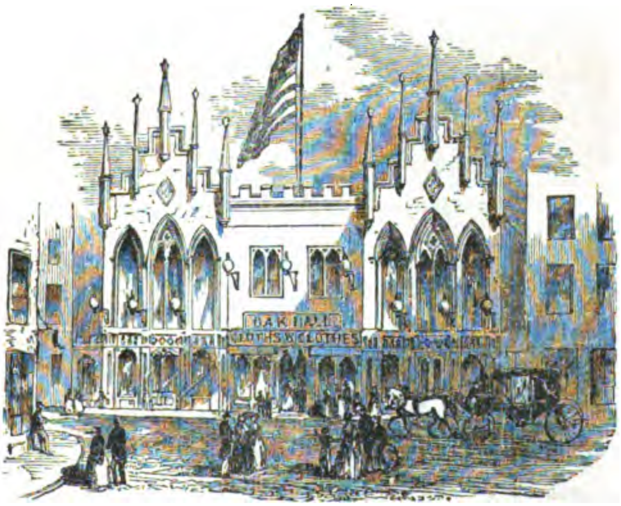

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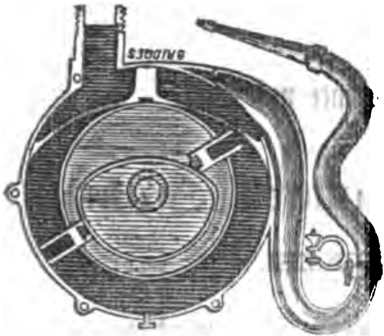

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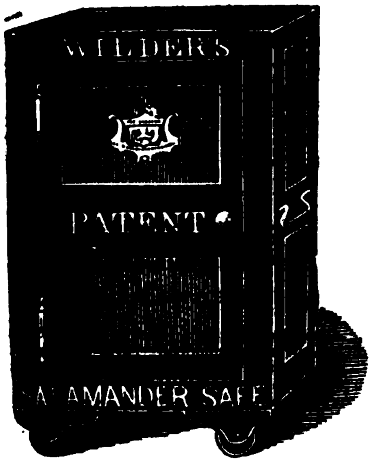

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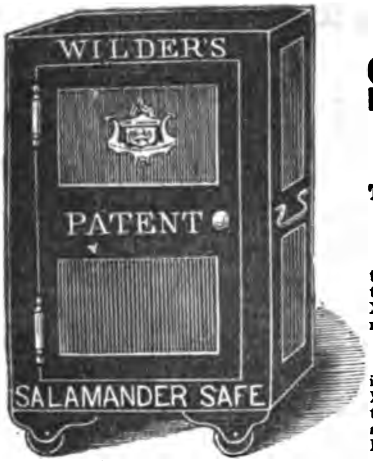

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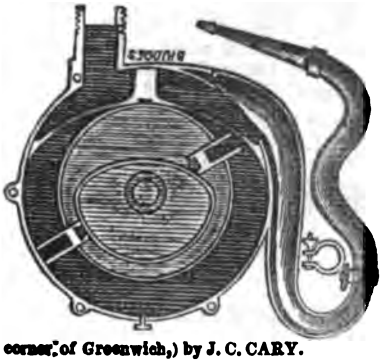

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PUTNAM'S MAGAZINE for September is, without doubt, the most "solid" number ever issued of this admirable monthly. Its leading articles are of a character which would do credit to the English Reviews, while the Editorials and Notices are conceived in a most thoughtful and appreciative spirit.

The first article in the September number is a finely-written critique, original and effective. Such papers reflect honor upon our literature, and will do good.—*Sandusky Register.*

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PUTNAM'S is unusually strong this month: it has exhibited signs of gradual but decided improvement since it passed into the hands of its present publisher. The reviews of books are impartial and well executed as usual.—*N. Y. Daily Times.*

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The brief notices of new books in Putnam are independent, condensed, to the purpose. They generally touch the core of the matter, and show that the books have been *read* before being noticed. Of how few critical publications can we say as much!—*Phil. Morn. Times.*

We have already given several extracts from this very able periodical, and we are glad to say again, that; while on matters of general literature we do not pretend to draw it within our criticisms, in matters of religion, so far as it discusses them, its influence is sound and healthy.—*Phil. Episcopal Review.*

PUTNAM'S MONTHLY MAGAZINE.—This sterling periodical, for September, is at hand, brimful of miscellany at once entertaining and instructive. Putnam's Monthly is the only Magazine in this country—almost in the world—to which can be ascribed the credit of being logical without being dull; of conveying wholesome and valuable instruction to the mind, while at the same time it leaves pleasant impressions upon the brain. Its strides to popular favor have been no less certain than rapid, and now, in its sixth volume, it stands foremost in the ranks of periodical publications. Its table of contents for September, presents the same instructive and diverting *melange* of history, poetry, criticism, reviews, tales, and editorial comments as usual. —*Troy Whig.*

PUTNAM'S MONTHLY.—The growing excellence of this American magazine, is among the praise-deserving enterprises of the day. With editorial talent among the best in the world, with contributions from the richest minds on our continent, and judicious management on the part of its publishers, they are adding largely to the reputation of our national literature, and giving it a power and influence at once unattained by any similar publication.—*Highland Eagle.*

HOLMAN & GRAY, PRINTERS, COR. CENTRE AND WHITE STS., N. Y.

New Principle! New Remedy! No Poison!

RHODES' FEVER AND AGUE CURE,

OR ANTIDOTE TO MALARIA;

FOR THE PREVENTION AND CURE OF

Fever and Ague, or Chill Fever; Dumb Ague, and other Intermittent and Remittent Fevers; also of Bilious Fevers, accompanied by Typhoid Symptoms; Typhoid Fever, Yellow Fever, Ship and Jail Fever, General Debility, Night Sweats, and all other forms of disease which have a common origin in

MALARIA OR MIASMA.

THESE diseases are common to many localities of the United States; but wherever they prevail, North, South, East, or West, they all equally spring from the same miasmal cause. The great variety of symptoms and forms of disease is owing principally to difference in age, sex, constitution, and habits of the sufferers; but as the cause is the same, they will all equally yield to a remedy that is competent to overcome or remove that cause.

By the laws of Nature every principle has its opposite, and for every disease, or cause of disease, there is a re-agent, or, in other words, a specific remedy. All Malaria, whether arising from marshes, stagnant water, decomposition of animal and vegetable matter, or even newly-cleared lands, is the same in character and effect; is a poison floating in the atmosphere, causing disease to all who breathe it. In accordance with those unalterable laws governing the unerring affinity subsisting between opposites, there is in the preparation before us, offered to the public,

THE NATURAL ANTIDOTE TO MALARIA,

which neutralizes the poison whenever it comes in contact with it, even in the open air, and when taken internally completely purifies the system affected by it of its baneful influence, and thus restores and preserves health.

The remedy is believed to be entirely new, and unknown to any but the proprietor, who distinctly claims the following extraordinary results from its use:

It will instantly check the ague in persons who have suffered for any length of time, from ONE DAY TO TWENTY YEARS, and by continuing its use, according to the directions, a radical cure will be effected; the patient continuing free from the complaint forever, unless subsequent exposure to malaria should make its use again necessary.

In its operation upon the poison in the system, it will immediately relieve all the distressing symptoms of bilious or ague diseases, and when the disease is cured, it will entirely prevent the accession of

GENERAL DEBILITY AND NIGHT SWEATS,

which so often follow the administration of other medicines. The patient at once begins to recover appetite and strength, and continues to improve until restored to perfect health.

By its use Fever and ague may be banished from every family and class in the community; farmers, mechanics, and all laboring people may be using this article as a

PREVENTIVE,

and pursue their respective avocations in perfect safety from ague or bilious attacks during the sickly season, which is often to them the most valuable part of the year.

Since the introduction of the CURE in every part of the United States, its success has been so complete and unvarying as to have fully proved these assertions in favor of its extraordinary merit.

When these declarations were made, at the date of its introduction, they seemed incredible to many, even of the most candid minds, because all the resources of science had been taxed in vain to subdue ague or bilious diseases; and what was still worse for ague sufferers, all their remedies or treatment, whether scientific or empirical, have been limited to the use of poisonous or destructive drugs, such as Arsenic, Quinine, Mercury, Salicine, &c. The effects of these are sometimes worse than the disease they subdue, and when such remedies fail, or give only temporary relief, their poisonous effects are superadded to the poor sufferer's first complaint.

On this account ague sufferers should be particularly careful about using any secret Fever and Ague remedies, notwithstanding the makers of them uniformly assert they may be taken with perfect safety, even when it is notoriously well *known that their potency* depends solely upon destructive poison.

Now as a proof that the Remedy is not only valuable on account of its power to cure diseases, but that it is also

WORTHY OF PUBLIC CONFIDENCE,

BECAUSE OF ITS

SINGULAR AND ENTIRE HARMLESSNESS,

the following *certificate from one of the most celebrated* chemists in the *United States has been obtained*, and a copy of it is *attached to every bottle:*

NEW YORK, June 11, 1855.

"I have made a chemical *examination of Rhodes'* Fever and Ague Cure, or Antidote to *Malaria, and have* tested it for Arsenic, Mercury, Quinine, and *Strychnine*, and have not found a particle of either in it, *nor have I* found any substance in its composition that would *prove* injurious to the constitution.

"JAMES R. CHILTON, M. D., Chemist."

It is a stubborn fact, therefore, that this Remedy is destined not only to relieve the human family from malarious diseases, but to do an equally good work by preventing the taking of other medicines which do harm.

The entire absence of any baneful ingredient makes this Remedy, not more valuable as a Cure, than it is as a preventive.

No class of disease is so easily managed as the one under consideration, if the medicine be taken in advance. This is owing to the diseases being produced by one and the same cause, and therefore all, both residents and travelers, should protect themselves by the timely use of this preventive, and not wait for the poison already lurking in their veins to develop itself in a violent attack. Take the Cure as a preventive, and so destroy the poison before it does harm.

Full directions and advice as to Diet and Habits of life prepared by a distinguished Physician long resident in a Bilious climate now accompany each bottle.

It will often be found necessary to precede this medicine by a mild cathartic or antibilious purgative. The very best thing for general use is a moderate dose of Castor Oil, the object of which is to cleanse the stomach and free the biliary passages. Remember that where this is necessary, or there is costiveness, it MUST BE TAKEN, or the operation of the antidote will be seriously obstructed,

ONLY CAUTION.—In certain specified cases, pour the contents of one or more bottles of the Cure, into shallow vessels (dining plates), and place them in sleeping rooms; for the vapor rising from the medicine, and also the air wafted across, or circulated over the dregs of it, after the liquid is evaporated, will counteract and destroy, to a degree commensurate with its exposure, the miasmata or poison contained in the apartment. This mode of exhibiting Cure should likewise be resorted to when very young infants are exposed to malarious situations.

The bottles in which this medicine is put up have the words "RHODES' FEVER AND AGUE CURE" blown in the glass, and on the outside wrapper is the name of the medicine (the copyright of which is secured), and the signature of the proprietor. These precautions are adopted to prevent counterfeits and imitations.

The RELIANCE FOR ITS SUCCESS IS ENTIRELY UPON ITS ACTUAL MERITS wherever introduced and used. These will be considered sufficient.

Prepared and sold by the proprietor,

JAMES A. RHODES, *Providence, R. I.*

For Sale by Druggists generally throughout the United States, Canadas, etc.

INHALATION FOR DISEASES OF THE LUNGS.

The following letter on the subject of inhalation as a remedy for consumption and its congeners was written by Francis C. Woodworth, editor of "Woodworth's Youth's Cabinet." We present it without any remarks of our own, other than this, that we regard the testimony of Mr. Woodworth as reliable in the highest degree. The letter was originally communicated to Mr. Sampson, of the house of Messrs. Phillips, Sampson & Co., a gentleman who has a pulmonary consumption of some years standing.

116 Nassau Street, New-York, August 25, 1855.

My Dear Sampson:—I am sorry to learn that the genius of disease is making progress in your lungs. I am not surprised, however, by this disagreeable intelligence, for I have but little faith in the treatment most in vogue for consumption and kindred diseases. The great mass of the medical faculty regard it as an axiom, that consumption is incurable. The most that they attempt, therefore—I speak of the multitude, not of every individual physician—is to render the consumptive patient as comfortable as possible on his way to the grave. But, my dear friend, is this axiom a sound one? Is this malady beyond the reach of medical skill? I think not. I am not extravagantly sanguine in respect to achievements in the art of healing. It has long been my conviction that there is no science so little understood—none which from the very nature of disease, is so enveloped in mist and darkness. But, at the same time, I am confident, from the reason of the case, as well as from well-established facts, that diseases of the lungs, including consumption in its early stages, are not marked by any *peculiar* obscurity, and consequently exhibit no peculiar obstinacy.

I said that I have but little confidence in the old and more current method of treating consumption and kindred diseases having their seats in the lungs. To my mind, it is in the highest degree unphilosophical to levey a tax on the stomach for the benefit of the lungs, when, as is uniformly the case in pulmonary difficulties, this much abused organ, from intense sympathy with the diseased member, has quite as much as it can do to keep its machinery in healthful operation. Look at the absurdity of the thing. Nauseous and poisonous drugs, enough to furnish a village apothecary's shop, are thrown into the stomach to impede its action, and just at the time when the energies of the system are sinking, and when the heart and the lungs, in consequence, are forced to make unusually large drafts on the organs of digestion; for no one, with ever so superficial a knowledge of the animal economy, can help seeing, that the regular and rapid conversion of food into blood is more than ever necessary in consumption, to repair the waste induced by this disease. It were far better, in my judgment, for a physician to give his consumptive patients a thorough *letting alone* than to give them drugs; and I will do the faculty the credit to believe that they adopt the former, rather than the latter course, in some (I wish I could say many) instances.

You have surmised already, that I have become a convert to the doctrine of inhalation of alcoholic vapors in cases of pulmonary consumption, and you are right. Some time since, by the advice of a friend, I was induced, for my own benefit, to canvass this theory carefully and thoroughly. It seemed at first more consistent with reason than any of those which are current in the different schools of medicine; the more I looked into it, the stronger the conviction in my mind became, that it was the only rational theory. I give my opinion, I must confess, with some diffidence; for I am quite well aware that there is a very large class of professional men who deem the expression of any opinion on the part of one of the laity, like myself, in respect to the theory and practice of medicine, as most unwarrantable arrogance. Our business, we are told, is to believe, not to speculate; to swallow bitter doses, not to analyze, still less to denounce them. But I verily believe that, if I have been grasped by the ruthless hand of disease, I may use some discretion, especially when doctors so widely disagree as to the mode of getting out of his grasp, nor can I exactly see why I should be charged with the presumption of setting myself up for an Æsculapius or a Galen, because I take such a liberty.

Having satisfied myself as to the philosophy of the system of inhalation, I then examined the records of a multitude of cases which had been treated according to this system, for what is that philosophy worth which has not a broad foundation of well attested facts to stand upon?—to see how they accorded with this theory. The result was an overwhelming amount of evidence, both from patients who had been under this mode of treatment, and from candid physicians who had jealously watched the effect of this treatment, of the efficiency of inhalation.

The physician who has attended me at my country residence, ever since my severe attack of congestion of the lungs some two years since, and who, besides being one of the most rational and judicious physicians in the whole round of my acquaintance, is one of the best-natured and most unselfish men in the world, not only consented that I should make trial of this new method of treating diseases of the lungs, but advised me to do so, giving it as his opinion that there was more science than quackery in it. Still I hesitated. You see how obstinately conservative I am. One day, while in the city of New-York, I called on one of the most popular and it is fair to say one of the most successful physicians of the old school, and asked him to examine my lungs. He did so. Incipient tubercles, he said, had begun to show themselves on the right lung. Well, I was prepared for that disclosure. It was no more than I anticipated, scarcely as much. "Now, sir," I asked, "would you be willing to take my case under your care, do you think you could be of any service to me?" He replied with a frankness not often encountered in the profession or out of it. "I tell you plainly, I would rather not undertake it; I have very little confidence in my skill in such cases."

After this, I consulted Dr. Guilford D. Sanborn, No. 6 Bond Street, New-York, one of the gentlemen, as you are aware, who treat consumption and kindred diseases by inhalation. I went to Dr. Sanborn, rather than another, because I was better acquainted with his theory and practice, several of my own personal friends having been under his care, and derived incalculable benefit, in their judgment, from his treatment. Dr. Sanborn's opinion of the state of my lungs, after a minute examination with the stethoscope, coincided exactly with that of the physician whom I had previously consulted, though, unlike this physician, he was sanguine in the belief that he could be of essential service to me. I placed myself under his care, I commenced inhaling medicated vapors according to his directions, I commenced drinking wine too, under protest of course, as you know I am a disciple of the abstinent school—also by his advice. In fact, I made a pretty general use of alcohol, considering my former habits, both outside and inside. These were the principal, though not all, of the features embraced in the system of Dr. Sanborn. I scrupulously and carefully observed all his instructions. I even consented, for a time, very materially to reduce the number of hours devoted to my literary tasks. Well, for some reason or other, perhaps for a combination of reasons, my health has improved to an astonishing extent; my appetite has increased; my strength is far greater; my cough has been checked; I suffer much less from want of breath when exercising; I scarcely perceive that any difficulty whatever exists in my lungs. I do not claim that inhalation alone has done all this. I am not sure that it has been the principal agent. But, is it not a fair presumption that the entire treatment of Dr. Sanborn, including this agent, has been the means, under God, of effecting this favorable change? Would you not say, were I under the care of any physician of the old school, who was entirely *en regle*, that any improvement was due to his skill? How then can I deny to Dr. Sanborn, albeit a little irregular in his practice, the credit of doing me immense service?

The object of this long letter, my dear friend, I need not tell you, is an endeavor to prevail on you to give the system of inhalation a trial. I am sure it can do you no injury; I am almost equally sure it will prove a benefit to you. Pray lose no time in making the trial.

Yours sincerely,

FRANCIS C. WOODWORTH

A FARM AND WATER POWER FOR SALE

FOR SALE.—A Farm with extensive Water Power Privilege, together with 184 Acres of land, located about two and a half miles from Ellenville, in Ulster Co., on the line of the Delaware and Hudson Canal. About one-third of the land is in a high state of cultivation; six dwelling houses, will accommodate nine families; a store, with sheds adjoining; barn and sheds, and a saw-mill; also, a never-failing stream of water, with falls sufficient to erect several over-shot water wheels, all of which is convenient to the dwelling and the road leading to the canal.

For further particulars enquire of S. CUTTER, No. 386 Ninth Street, New-York: S. SANFORD, 180 Mill Street, Po'keepsie, or of the Proprietor on the premises.

tf. **JAMES M. SANFORD.**

MEXICAN PHOSPHATIC GUANO.

A permanent manure that will not evaporate in the atmosphere, *burn the crop*, or exhaust the soil. ☞ One ton of this PHOSPHATIC GUANO, is equal to *three tons of Peruvian* or any other ammoniacal Guano on exhausted lands, in yielding Wheat, Corn, *Rye*, *Oats*, *or other* Grains, Clover, Grass, &c.

Price at Retail, per Ton of 2000 *lbs.* $40.
" " *for 5 Tons* " 38.

Dealers supplied at wholesale from cargoes now arriving, on liberal terms. Full particulars on application to the subscriber.

Every package is branded with the name of the Sole Agent and is guaranteed.

Apply to H. N. FRYATT, Sole Agent, 161 Water Street, New-York City.

Aug. 7. tf.

COMMERCIAL, AGRICULTURAL, AND METALLURGICAL LABORATORY,

No. 2 EVERETT HOUSE,

Cor. of Fourth Avenue & 7th Street, **NEW-YORK.**

This Laboratory is a department of the Union Square Real Estate Office, and is under the personal direction and charge of Dr. J. H. Salisbury, late Chemist to the New-York State Agricultural Society, and widely known and justly celebrated for his eminent attainments in this and kindred departments of Science.

The object of the Proprietors in establishing this Laboratory is to furnish those interested in Commercial, Agricultural, and Metallurgical pursuits an accessible, ready, and reliable means for obtaining analyses of Commercial Articles, Soils, Manures, Marl, Peat, Limestone, Gypsum, Coal, Ores, and Minerals of every description, together with all other information connected with the application of Chemistry to Agriculture, Geology, Mining, Engineering, and the Arts generally.

Surveys and Reports of Mineral Property, and other business pertaining to Mining interests, will receive special attention.

CHARGES FOR ANALYSIS.

Quantitative Analysis of Coal or Peat,	$10 00
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" " Mineral and Spring Waters,	10 00
" " Ore, and Minerals generally,	$10 to 20 00

The above charges to accompany Samples or Communications. No Analysis will be allowed to pass out of the Laboratory till paid for.

For Analysis enough of the above-mentioned substances should be sent to make one pound, when that of Mineral or Spring Waters one gallon is required.

All Samples and Communications to be forwarded by Express, or post-paid, to Dr. Jas. H. Salisbury, No. 2 Everett House, cor. of Fourth Avenue and 17th Street, or presented in person at his Office, No. 1 Appleton's Building, over the Book Store, 346 Broadway, New-York.

EMERSON W. KEYES, } Proprietors
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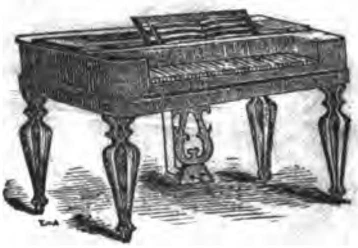
MANUFACTURERS OF CARHART'S CELEBRATED

MELODEONS,

SERAPHINES, AND REED ORGANS,

FISHER'S BLOCK, MAIN STREET NASHUA, N. H.



Such improvements have been made of late in Melodeons, that they have come to be the most popular and desirable instrument in use, and, if we may judge from the demand for them, they will soon be indispensable in every family. We well know that the manufacturer who produces the best article will lead the trade, for discerning musicians will judge for themselves. We believe, and good judges have said, that our instruments are in all respects superior to any other of a similar kind, and particularly in respect to quality of tone and promptness of touch, or action of reeds, by which quick passages may be performed with certain and distinct articulation.

An instrument of this kind is the best substitute for an organ in church music, and will admit of the performance of as rapid passages as the pianoforte.

Our instruments are put up in elegant rosewood cases, with the usual variety of size and price—they are warranted to give perfect satisfaction, and will be carefully packed and sent, at our own risk, to any part of the United States.

DWARF AND STANDARD FRUIT TREES,

GRAPE VINES, STRAWBERRIES, &c. &c.,

ORNAMENTAL TREES AND SHRUBS; EVERGREENS, ROSES, &C.

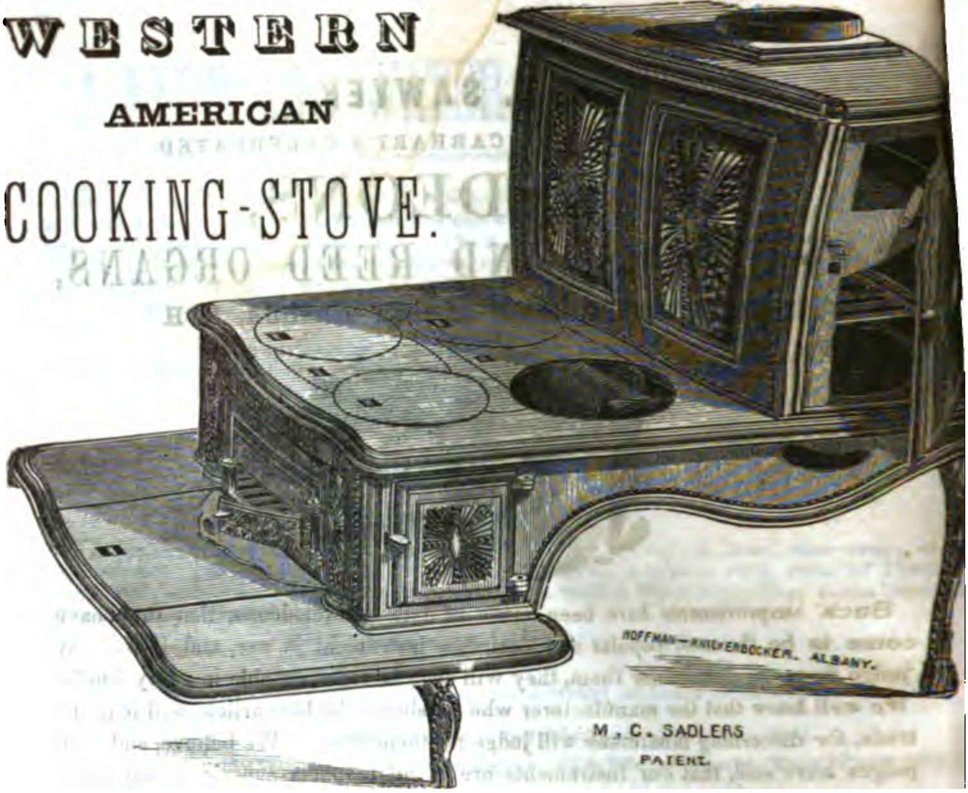
CARRIAGE PAID TO BOSTON AND NEW-YORK.

B. M. WATSON, Old Colony Nurseries, Plymouth, Mass., would call attention to his large and fine assortment of new and rare ornamental Trees and Shrubs, Vines, Evergreens, Roses, Hedge Plants, &c., for the lawn, avenue, and cemetery, including many new varieties now offered for the first time in this country. A full descriptive priced catalogue is now ready, and will be sent gratis to any address. The nurseries are within ten hours of New-York by the Old Colony and Fall River route; and B. M. W. takes pleasure in announcing that the carriage of all packages will in future be paid to New-York as well as to Boston, and also to all stations on the O. C. and F. R. Railway. Parties about purchasing are invited to send for a catalogue before purchasing elsewhere. Persons about purchasing large quantities of young trees and shrubs for masses, hedges, groves, belts, &c., at low prices, are referred to catalogue, pp. 3 and 4.

Also a fine collection of Dwarf and Standard Pears, Apples, Plums, Cherries, Peaches, Apricots, Nectarines, Quinces, &c. Also, Currants, Grapes, Gooseberries, Raspberries, Strawberries, Rhubarb, Asparagus, Needham's White Blackberry, Cultivated High-bush Blackberry, Foreign Grapes for Vineries—strong plants. Nuts, Figs, Medlars, Mulberries, &c., in variety. Among the novelties are the Concord Grape, *Fertile of Angers*, and *Fertile of Palluau* and other Currants, several new Roses, Raspberries, and also, Pear, Apple, Plum, Cherry, Angers Quince, Mahaleb, Paradise and Doucin stocks.

Descriptive price catalogues to any address.

WESTERN AMERICAN COOKING-STOVE.


HOFFMAN—KNICKERBOCKER, ALBANY.

M. C. SADLERS
PATENT.

THE undersigned having been constantly engaged in the retail Stove trade since 1836, and having spent much time and money in the invention and structure of Patterns during the last fifteen years, he has now the satisfaction of being able to announce to the Stove Manufacturers and the public that, in November, 1852, he obtained a Patent for a combination of improvements in the Cooking Stove, and that since that time he has been thoroughly testing, improving, and perfecting the Stove containing these improvements. The above cut represents the Stove in its present form, and the undersigned presents it to the public with entire confidence as to its superiority.

The main object of this circular will be to point out the above improvements and the consequent advantages. But it may be proper first to show the prominent defects in the more popular stoves now in use, that the importance of these improvements may be more readily understood. And it may be here asserted, that among the almost endless variety of names to stoves, as well as designs and forms, there are really but two distinct principles in general use. These are distinguished as the high and the low oven; the high oven being located above the fire, and the low oven below. Among the important and unavoidable objections to the low oven, are the following, viz: *First.* The want of heating surface for warming rooms where heat is desired; the top or boiler-plate being the main heating surface, (as heat will not act to any extent upon the outer surface when forced downward under the oven,) while the elevated oven has the same heating surface lower in the room, (consequently much better,) the oven acting as a perfect drum on the top, producing at least double heat with the same fuel, giving this principle a great advantage during the cold season, especially to the agricultural interest, and, in a good degree, to the mechanical. The next objection to the low oven as a wood-stove is, its liability to be affected by the action of pyroligneous acid, which forms upon the under surface of the main bottom oven plate. This formation becomes a solid crust on the oven-plate, and can not be separated, except by excessive heat, which can not be applied without taking the stove to pieces, and this crust, when formed to any extent, is a perfect non conductor of heat, and the oven fails. The third objection is a want of durability, upon the principle that no plate can be sustained long near the fire-chamber without a free action of cold air upon its opposite surface, and the back plate to the fire-chamber can not have this action without a serious injury to the oven. The fourth objection is increased expense: as the lining to the low oven must be cast-iron, while the lining to the elevated oven should be sheet-iron, which is much less expensive, and in this oven is equally durable. The fifth objection is inconvenience; as the boilers and fire-chamber are too high and the oven too low. The objections to the high oven as generally introduced are *First,* The great distance from the fire-chamber to the oven, causing a great increase of fuel, and, consequently, great inconvenience from the excessive heat during the warm season, as well as extra expense. The great effort which has been made to overcome these defects is the strongest proof of their existence. The oven has been raised on pipes over the boilers—this was impracticable except for a two-boiler stove; it has been placed back, and the movable plan called the railway adopted. But the want of tightness, the expense of machinery, and liability to get out of order, were the objections. The second fire-chamber back of the main chamber has been tried, but the draft being at one end of the chamber, and no ability to convey it through the chamber, it has been found impracticable and generally abandoned. Many other plans have also been tried, and have been found wanting. The second objection is the want of oven capacity, which has been a serious objection to the larger families, and the remedy has been found extremely difficult. Should the oven be enlarged in width the stove would be too long, and the amount of fuel would be much increased; if in length, the heat would not act upon the ends, and if in height, the oven would not bake in the middle. These two, it is believed, are the only important objections to the elevated oven; and to avoid these may be imputed the sole cause of the first introduction of the low oven; the high oven, in all other respects, being superior. Now, the object and design of the undersigned's improvements is to entirely remove the objections to the high oven, retaining all its advantages, and, at the same time, possess all the benefits of the low oven, avoiding its defects. And to effect this object, a deep sink is first placed in the fire chamber; this gives extra room for fuel, and is designed for the cold season. A grate is next attached in front, and a bed plate in rear, sufficiently large to cover the surface of the sink, and resting upon its top; back of

ates, at the centre of the fire-chamber, a cross-sink is placed, extending back, and in an upward direction
ont of the oven.
construction brings the fuel near the boilers; the coals are retained on the bed-plate back of the grate; chips
oal burn equally well with wood and with the cross sink wood burns endwise from the front, free to the
being raised at the back by the sink, giving a free circulation of air underneath. Two objects are thus effected.
, a perfect summer arrangement. The second, bringing the fire as near the oven as desired in the most sim-
practical manner, without heating but a small part of the front of the stove, and entirely avoiding the unne-
heat and expense attached to other elevated ovens. For ironing, for the dairy, and other purposes, a large
ole is placed over the centre of the fire-chamber, where the sad iron may be heated with chips or charcoal as
dily as in the furnace, and the brass kettle or any large vessel may be used. At the back end of this cross-
angular division-plate is attached, standing upright. This divides the heat, and causes it to strike the oven
h end. Upon this division plate rests a curve-plate, the front edge striking the top or boiler-plate just for-
f the front of the oven: this plate curves back under the oven near to its centre; thus the heat is carried to
tre of the oven and near each end, and there it first acts upon it. The bottom of the oven being cast-iron, and
ne with the top or boiler plate.
e next improvement is, to place internally two ovens the one above the other, both ovens being sheet-iron, ex-
e lower bottom-plate; on each side of these ovens a plate called a guard-plate is attached and fitted to the
plate. These plates extend inwardly midway between the two ovens so far as to force the heat in around
. In this manner the heat divides upon the bottom of the lower oven near each end, passing up and around
ides, and by the guard-plate is carried to the centre between the two ovens; here it divides and passes around
per oven in the same manner, and out at the collar on the top. Thus it will be seen that the same heat is used
over the entire surface o two distinct ovens instead of one, and the most naturally, perfectly, and economi-
that it can be applied upon an oven. A stop is also placed upon the oven-head between the two ovens, which,
raised, allows the steam to pass out of the ovens. The effect is, first, to allow meats to be baked in the lower
s perfectly as in the tin kitchen before the fire-place. Secondly, to allow all kinds of pastry to be baked in the
oven at the same time as perfectly as in the brick-oven; and as to capacity, the oven on the nine-inch stove
nine common pie-tins at once, without changing in any manner, or six loaves of bread. This finishes the im-
ment in the Cook-Stove.
he undersigned would next present a Stove arranged for the Dining-Room during the cold season. See cut,
745, of this number.
This stove is arranged on the same general plan of the cook, except that the oven is made single instead of double,
is brought forward and placed over the second tier of boilers. This stove is a fine heater. It requires no more
than the parlor-stove; has four good boilers when the oven is not in use, otherwise two boilers. Has an ex-
nt oven, and its arrangement for broiling, ironing, and cooking is complete, and is much the cheapest stove for
size and capacity in market; altogether, the most durable, and sufficiently ornamented for any sitting-room, and
rably arranged for coal as well as wood, and for the small family as well as the dining-room.
Extensive arrangements have been made with MR. JAMES WAGER, of Troy, for the manufacture and sale of
Stoves and Patterns for the year 1855, and either will be furnished having all the style and finish that the best
ists and manufacturers in the city of Troy can produce.
The manufacturers will understand that these are easy stoves to cast, and simple to mount; that, as the princi-
is Patented, they can have the control for many years; that exclusive Furnace Rights will be given in the sale of
tterns; that, having the Patterns for the Cook-Stove, only a few extra pieces will be required for the Dining-Room.
sizes will be furnished that may be desired.
All communications addressed to MR. JAMES WAGER, of TROY, or to the undersigned, at BROCKPORT, N. Y.,
ill receive prompt attention.

M. CHAPIN SADLER.

* * *

P. S.—As a proof of the merits of the above improvements, Certificates from those who have tested them by
ousands can be furnished, but the following are presumed to be sufficient. The first, with nearly forty names, was
gned at an Agricultural Fair held at Rochester, and mostly by strangers to the undersigned, and all within a few
urs' time. The others, by the most substantial men engaged in different pursuits.

We, the undersigned, citizens of Monroe County, N. Y., and vicinity, hereby certify that we have had in use, for
me time past, the Western American Cooking-Stove, invented by M. C. Sadler, of Brockport; that we consider it
cidedly the best stove we have tried, and should much prefer it to any stove we have seen. The oven, we think, is
equalled, being a perfect baker, baking meats, pastry, &c., all at the same time. The boiling arrangement we pre-
r to any we have noticed, believing that can get more heat with less fuel, and less labor in preparing it. Indeed,
is Stove seems to perfect every object designed. It is simple to manage, economical, tasty in appearance, and con-
nient; and, we believe, the most durable stove in market, and the best adapted to the wants of the farmer, as it
es the work in summer without an excessive heat, and is the most pleasant winter stove we have found, giving the
st steady and uniform heat, with the least fuel.

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* * *

M. C. SADLER, ESQ.—DEAR SIR: I take pleasure in certifying that I have one of your No. 8 Western American
oking-Stoves in use. I have tested it one year, and find it entirely satisfactory. It is extremely simple in arrange-
nt, most perfect in application for all the variety of cookery. I consider the principle altogether superior to the
ree-Flue Low-Oven arrangement, (having tested this arrangement before using yours,) as it is much more rapid
its operation, and requires much less fuel.

Yours, &c.,
ELIJAH FOOT, Keeper Boarding-House, Brockport Institute.
THOMAS TALFORD, Inn-Keeper.
SILAS WALBRIDGE, Inn-Keeper.

* * *

M. C. SADLER, ESQ.—DEAR SIR: In answer to your inquiry as to the merits of your Western American, I can
ely say, I have used one of your largest size, for nearly one year, and find it all that is desirable for a Cooking-
ve. It has the most perfect oven I have ever found—a stove perfectly simple, durable, economical, and conve-
nt; and, I think, particularly adapted to the wants of the farmers, who use their Cooking-Stoves for warming
ir rooms in winter—as the oven is a drum for this purpose. I have kept public house for a number of years, am
ll-acquainted with stoves, and consider yours altogether superior to any I have used.

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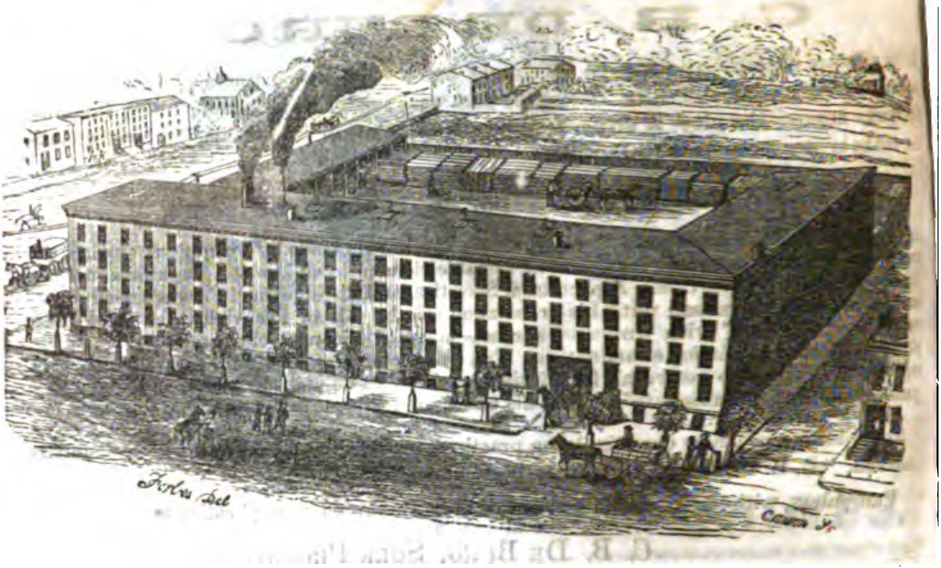

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May tf.

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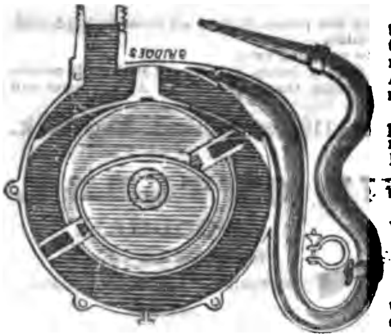

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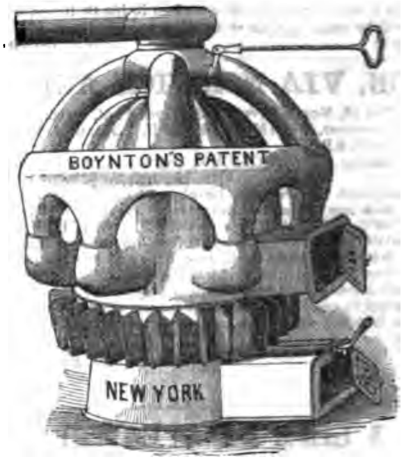

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